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Drinking Water Surveillance Program

CAYUGA WATER TREATMENT PLANT

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CAYUGA
WATER TREATMENT PLANT

DRINKING WATER SURVEILLANCE PROGRAM

ANNUAL REPORT 1989

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EXECUTIVE SUMMARY

DRINKING WATER SURVEILLANCE PROGRAM

CAYUGA WATER TREATMENT PLANT
1989 ANNUAL REPORT

The Drinking Water Surveillance Program (DWSP) for Ontario is a monitoring program providing immediate, reliable, current information on drinking water quality. The DWSP officially began in April 1986 and is designed to eventually include all municipal supplies in Ontario. In 1989, 65 plants were being monitored.

The Cayuga Water Treatment Plant treats water from the Grand River. The process consists of coagulation, flocculation, clarification (upflow clarifier), filtration and disinfection. Activated Silica is added as coagulant aid as necessary. This plant has a design capacity of 1.09 x 1000 m^3/day and serves a population of approximately 1,100.

Samples of the raw and treated water at the plant were taken on a monthly basis and analyzed for the presence of approximately 180 parameters. A sample of water from the distribution system was analyzed once in 1989. Parameters were divided into the following groups: Bacteriological, Inorganic and Physical(Laboratory Chemistry, Field Chemistry and Metals) and Organics (Chloroaromatics, Chlorophenols, Pesticides and PCB, Phenolics, Polyaromatic Hydrocarbons, Specific Pesticides and Volatiles). Specific Pesticides and Chlorophenols were analyzed in November only.

A summary of results is shown in Table A.

Inorganic and Physical parameters (Laboratory Chemistry, Field Chemistry and Metals) were below applicable health related ODWOs.

Samples were analyzed monthly for the presence of approximately 110 Organics. Levels did not exceed health related guidelines.

During 1989, the DWSP sampling results indicated that the Cayuga Water Treatment Plant produced good quality water at the plant and this quality was maintained in the distribution system.

TABLE A

DRINKING WATER SURVEILLANCE PROGRAM CAYUGA WTP

SUMMARY TABLE BY SCAN

SCAN	RAW TESTS	RAW POSITIVE	RAW %POSITIVE	TREATED TESTS	TREATED POSITIVE	TREATED %POSITIVE	SITE 1 TESTS	SITE 1 POSITIVE	SITE 1 %POSITIVE
BACTERIOLOGICAL	36	30	83	36	14	38	3	2	66
CHEMISTRY (FLD)	34	34	100	70	70	100	4	4	100
CHEMISTRY (LAB)	252	238	94	252	210	83	37	33	89
METALS	288	190	65	288	163	56	47	30	63
CHLOROAROMATICS	168	0	0	168	0	0	14	0	0
CHLOROPHENOLS	6	0	0	0	0	0	.	.	.
PAH	189	0	0	189	0	0	.	.	.
PESTICIDES & PCB	408	4	0	408	4	0	34	0	0
PHENOLICS	12	12	100	12	12	100	.	.	.
SPECIFIC PESTICIDES	37	0	0	31	0	0	1	0	0
VOLATILES	348	5	1	348	47	13	29	3	10
TOTAL	1778	513		1802	520		169	72	

NO KNOWN HEALTH RELATED GUIDELINES WERE EXCEEDED.

A POSITIVE VALUE DENOTES THAT THE RESULT IS GREATER THAN THE STATISTICAL LIMIT OF DETECTION AND IS QUANTIFIABLE
A '.' INDICATES THAT NO SAMPLE WAS TAKEN

DRINKING WATER SURVEILLANCE PROGRAM

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INTRODUCTION

The Drinking Water Surveillance Program (DWSP) for Ontario is a monitoring program providing immediate, reliable, current information on drinking water quality. The DWSP officially began in April 1986 and is designed to eventually include all municipal supplies in Ontario. In 1989, 65 plants were being monitored.

The DWSP was initiated at the plant and at one location in the Cayuga distribution system in January 1988. An Annual report was published for 1988 (ISSN 0843-8323).

This report contains information and results for 1989.

PLANT DESCRIPTION

The Cayuga Water Treatment Plant treats water from the Grand River. The process consists of coagulation, flocculation, clarification (upflow clarifier), filtration and disinfection. Activated silica is added as a coagulant aid when necessary. This plant has a design capacity of 1.09 x 1000 m^3/day and flows on day of sampling ranging from 0.5 x 1000 m^3/day to 0.7 x 1000 m^3/day. It serves a population

of approximately 1,100.

The plant location is shown in Figure 1. Plant process details, in a block schematic, are shown in Figure 2. General plant information is presented in Table 2.

SAMPLING LOCATIONS

Water samples were obtained from three DWSP approved locations;

i) Plant Raw - The water originated from the raw water lowlift discharge after the chlorinator had been turned off and prior to the addition of any other chemicals. Water was sampled through a stainless steel sample line.

ii) Plant Treated - The water originated at the highlift discharge after addition of all treatment chemicals and was sampled through a stainless steel sample line. The sample tap is located in the plant laboratory.

iii) Distribution System - Site 1 - The distance of the house from the plant is unavailable. The material of the house plumbing is unavailable.

SAMPLING AND ANALYSES

Sample lines in the plant were flushed prior to sampling to ensure

FIGURE 1

DRINKING WATER SURVEILLANCE PROGRAM

SITE LOCATION MAP

CAYUGA WATER TREATMENT PLANT

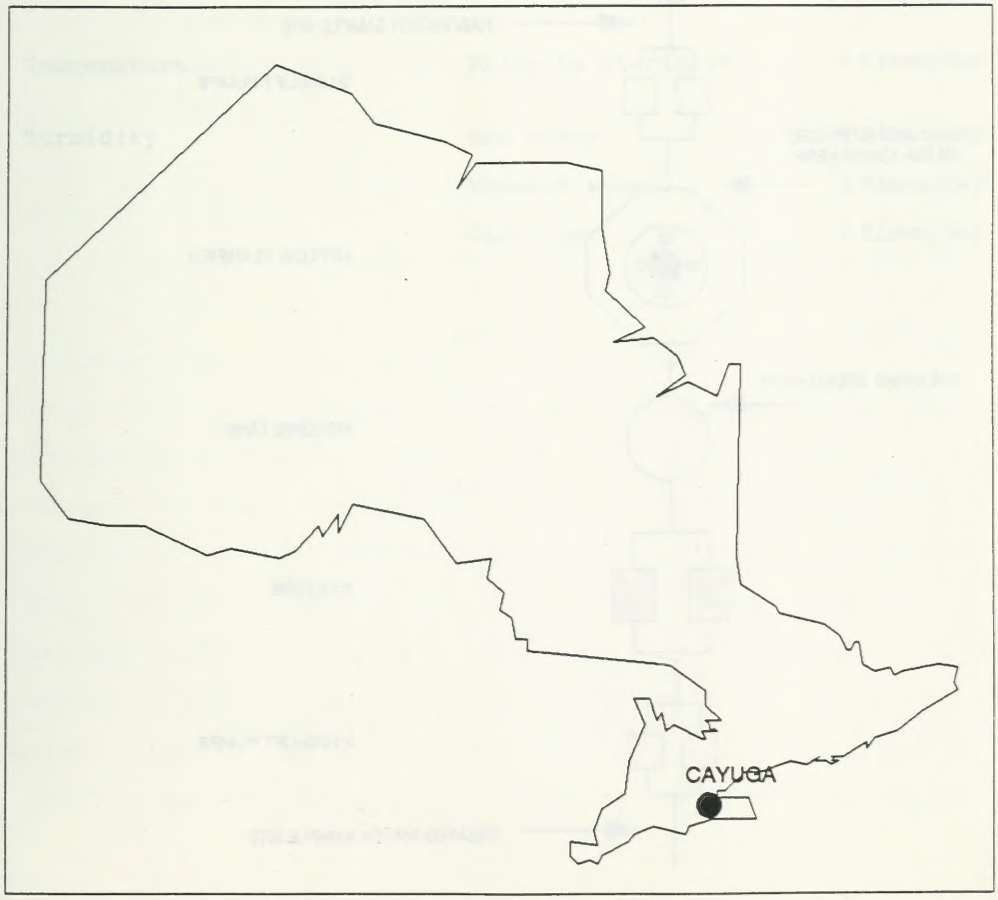

FIGURE 2

CAYUGA WATER TREATMENT PLANT

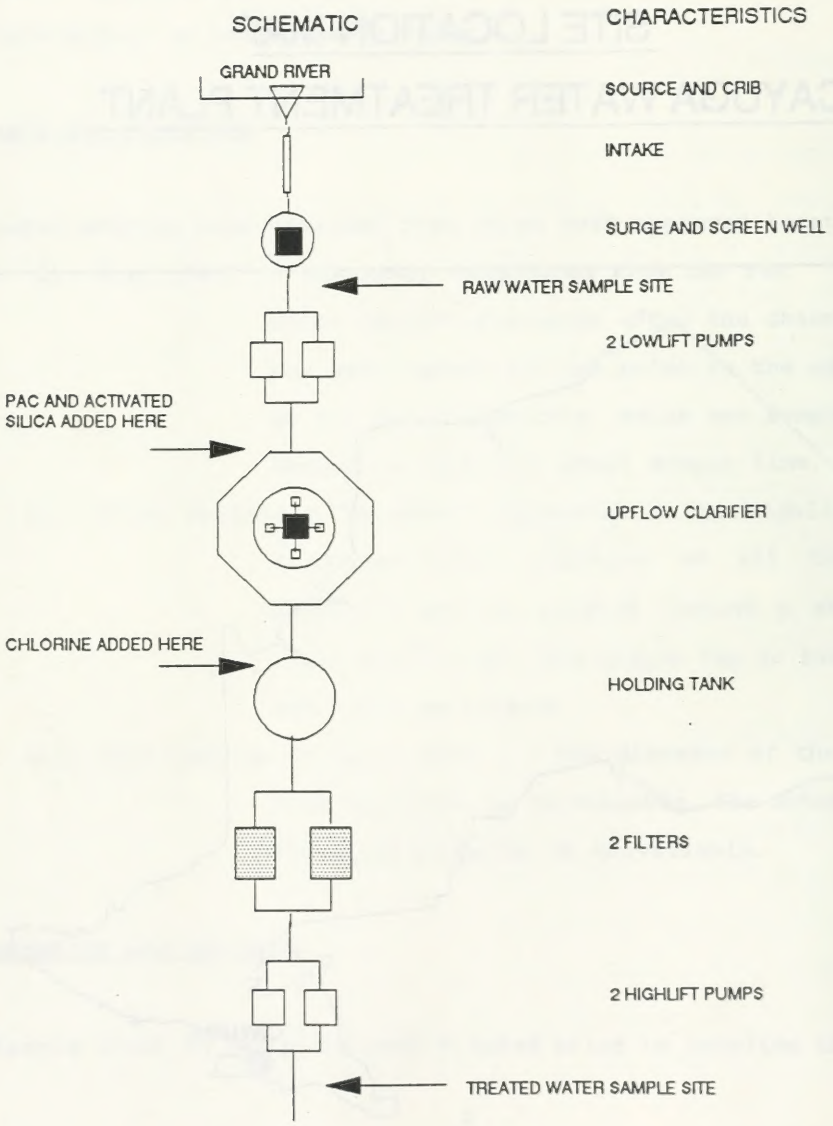

TABLE 1

DRINKING WATER SURVEILLANCE PROGRAM ANNUAL REPORT

IN-PLANT MONITORING CAYUGA WTP 1989

PARAMETER		LOCATION	FREQUENCY
Chlorine residual-free		Treated water	3 times/day
	combined	Treated water	3 times/day
	total	Treated water	3 times/day
Temperature		Prior to clarifier	3 times/day
Turbidity		Raw water	3 times/day
		Treated water	3 times/day
		Clarifier	3 times/day

TABLE 2

DRINKING WATER SURVEILLANCE PROGRAM ANNUAL REPORT

GENERAL INFORMATION

CAYUGA WATER TREATMENT PLANT

LOCATION:	HIGHWAY 54 NORTH CAYUGA, ONTARIO (MAIL) BOX 70, TOWN CENTER DRIVE TOWNSEND
SOURCE:	RAW WATER SOURCE - GRAND RIVER
DESIGN CAPACITY:	1.09 (1000 M^3/DAY)
OPERATION:	MINISTRY
PLANT SUPERINTENDENT:	R. BARRY
MINISTRY REGION:	WEST CENTRAL
DISTRICT OFFICER:	MR. J. VOGT

MUNICIPALITY SERVED	POPULATION
CAYUGA	1,100

that the water obtained was indicative of its origin and not residual water standing in the sample line.

At the distribution system location, two types of samples were obtained: a standing and a free flow. The standing sample consisted of water that had been in the household plumbing and service connection for a minimum of six hours. These samples are used to make an assessment of the amount by which the levels of inorganic compounds and metals may be changed on standing, due to leaching from (or deposition on) the plumbing system. The only analyses carried out on the standing samples therefore, are General Chemistry and Metals. The free flow sample represented fresh water from the distribution main that had been flowing at the sample tap for five minutes before being sampled.

Attempts were made to capture the same block of water at each sampling point by taking the retention time into consideration. The retention time was calculated by dividing the volume of water between the two sampling points by the sample day flow. For example, if it was determined that the retention time within the plant was five hours then there would be a five hour interval between the raw and treated sampling. Similarly, if it was estimated that it took approximately one day for the water to travel from the plant to the distribution system site, this site would be sampled one day after the treated water from the plant.

Stringent DWSP sampling protocols were followed to ensure that all samples were taken in a uniform manner.

Plant operating personnel perform analyses on parameters for process control (Table 1).

The raw and treated water at the plant were sampled monthly for approximately 180 parameters, the distribution system was only sampled once in 1989. Specific Pesticides and Chlorophenols were sampled in November only. Polyaromatic Hydrocarbons and Phenolics were only analyzed in the raw and treated water at the plant. As of August, the triazine pesticides were only analyzed in the raw and treated water. Laboratory analysis was conducted at the Ministry of the Environment facilities in Rexdale, Ontario.

RESULTS

Field Chemistry measurements were recorded on the day of sampling and were entered onto the DWSP data base as submitted by plant personnel.

Table 3 contains information on the sample day retention time, flow rate and treatment chemicals used and their associated dosages.

Table 4 is a summary break-down of the number of water samples

analyzed by parameter and by water type. The number of times that a positive or trace result was detected is also reported.

Positive denotes that the result is greater than the statistical limit of detection established by the Ministry of the Environment (MOE) laboratory staff and is quantifiable. Trace (<T) denotes that the level measured is greater than the lowest value detectable by the method but lies so close to the detection limit that it cannot be confidently quantified.

Table 5 presents the results for parameters detected on at least one occasion.

Table 6 lists all parameters analyzed in the DWSP.

Associated guidelines and detection limits are also supplied on tables 5 and 6. Parameters are listed alphabetically within each scan.

DISCUSSION

General

Water quality is judged by comparison with the Ontario Drinking Water Objectives (ODWOs) as defined in the 1984 publication (ISBN 0-7743-8985-0). The Province of Ontario has health related and aesthetic objectives for 49 parameters. These are currently under

review. When an ODWO is not available, guidelines/limits from other agencies are consulted. The Parameter Listing System (PALIS), recently published (ISBN 0-7729-4461-X) by the MOE, catalogues and keeps current over 1750 guidelines for 650 parameters from agencies throughout the world.

Many of the compounds detected are naturally occurring or are treatment by-products.

Plant operational personnel address occurrences of taste and odour or biological water quality parameters. The DWSP does not assess these aspects of the water supply.

As stated under Results, traces do not indicate quantifiable results as defined by established MOE laboratory analytical reporting protocols. While they can be useful in trend analysis or confirmation of the presence of a specific contaminant that is repeatedly detected at these levels, the occasional finding of a trace level of a contaminant is not considered to be significant. **DISCUSSION OF GUIDELINES AND LIMITS THEREFORE, IS ONLY CONDUCTED ON POSITIVE RESULTS.**

Bacteriological

Positive results for the Bacteriology scan were present fourteen times in the treated water and twice in the Site 1 water. The

positive parameters were Standard Plate Count, Total Coliform and/or Total Coliform Background.

Total Coliforms were detected by the membrane filtration test in the February treated water at 1 count/100 mL and in the November treated water sample at 4 counts/100 mL. The ODWO for Total Coliforms in drinking water is 5 counts/100 mL.

Standard Plate Count is a test used to supplement routine analysis for Coliform bacteria. The limit for Standard Plate Count (at 35°C after 48 hours) in the ODWOs is 500 organisms per mL (based on a geometric mean of 5 or more samples). High Standard Plate Counts were present in the April, June and July treated water samples. Neither sample contained bacteriological results over any applicable health related ODWOs.

Guidelines for bacteriological sampling and testing of a supply are developed to maintain a proper supervision of its bacteriological quality; the routine monitoring program usually requires the taking of multiple samples in a given system. Full interpretation of bacteriological quality cannot be made on the basis of single samples. Further, bacteriological limits were developed in acknowledgement that the presence of coliforms may be detected due to their non-uniform distribution throughout the distribution system and the fact that their enumeration is subject to considerable variation. For these reasons, the occasional finding

of low numbers of coliform organisms is not unexpected. Routine bacteriological monitoring, as outlined in the ODWOs is carried out by the operating authority.

Inorganic and Physical Parameters

Laboratory and Field Chemistry

The results for the Laboratory Chemistry and Field Chemistry scans were below applicable health related ODWOs.

Turbidity in water is caused by the presence of suspended matter such as clay, silt, colloidal particles, plankton and other microscopic organisms. The most important potential health effect of Turbidity is its interference with disinfection in the treatment plant and the maintenance of a chlorine residual. The ODWO of 1 Formazin Turbidity Unit (FTU) is only applicable to treated water leaving the plant. The laboratory turbidity value for the May treated water sample of 1.20 FTU was not supported by the field turbidity value. Protocol for turbidity states that measurements should be made within 48 hours. This is not always achieved except when measured in the field. The field turbidity values are therefore considered more reliable.

There are also ODWOs that are set for parameters which are related to aesthetic quality rather than health.

Colour values exceeded the aesthetic ODWO of 5 True Colour Units (TCU) six times in the treated water and Site 1 free flow water. Colour in drinking water may be due to the presence of natural or synthetic organic substances as well as certain metallic ions.

It is desirable that the Temperature of drinking water be less than 15°C; the palatability of water is enhanced by its coolness. A temperature below 15°C will tend to reduce the growth of nuisance organisms and hence minimize associated taste, colour, odour and corrosion problems. The temperature of the delivered water may increase in the distribution system due to the warming effect of the soil in late summer and fall and/or as a result of higher temperatures in the source water. The desired ODWO was exceeded five times in the treated water.

The ODWOs indicate that a hardness level of between 80 and 100 mg/L as calcium carbonate for domestic waters, provides an acceptable balance between corrosion and encrustation. Water supplies with a hardness greater than 200 mg/L are considered poor and would possess a tendency to form scale deposits and result in excessive soap consumption. The source water at Cayuga is the Grand river. As the watershed drains a limestone area, hardness components (calcium and magnesium) would tend to be leached from the surrounding geological formations. Hardness levels at Cayuga were between 247 mg/L and 390 mg/L.

The European Economic Community (EEC) aesthetic guideline level for Conductivity of 400 UMHO/cm was exceeded in all of the water samples, and is a result of the high hardness levels.

The Total Ammonium levels are high. This may be as a result of naturally occurring ammonia (eg. from sewage pollution or from agricultural run-off). While the European Economic Community has an aesthetic guideline of .05 mg/L, the Maximum Admissible Concentration is .50 mg/L and is set as a result of the concern for potential sewage pollution and its detection, this value was not exceeded.

The Langelier Index is used extensively in estimating the corrosion potential of water. An increasingly negative index indicates the increasing possibility of corrosion. It is considered sound engineering practice to maintain a slightly positive Langelier Index. The Langelier Index for Cayuga is consistently positive.

Metals

The results reported for the Metals scan were below any applicable health related ODWOs.

Iron and Manganese levels were lower in the treated water as compared to the raw. This is a result of the treatment process. The addition of coagulant to the raw water and the resulting coagulation/settling process has been shown to reduce the levels

of most metals.

At present, there is no evidence that Aluminum is physiologically harmful and no health limit for drinking water has been specified. The measure of residual Aluminum in the treated water is important to indicate the efficiency of the treatment process. The ODWOs indicate that a useful guideline is to maintain a residual below 100 ug/L as Al in the water leaving the plant to avoid problems in the distribution system. Aluminum values exceeded the ODWO operational guideline ten times in the treated water.

Organic Parameters

Chloroaromatics

The results of the Chloroaromatics scan showed that no chloroaromatics were detected.

Chlorophenols

The results of the Chlorophenols scan showed that none were detected.

Pesticides and PCB (Polychlorinated Biphenyls)

The results of the Pesticides and PCB scan showed that no PCBs were detected and that eight pesticides were detected:

Alpha BHC

Lindane

Atrazine

Des-ethyl Atrazine

Des-ethyl Simazine

Atratone

Cyanazine

Metolachlor

There are several isomers of BHC (Benzene Hexachloride). Gamma BHC is the active ingredient of the pesticide Lindane, while alpha BHC is the predominant isomer found in surface waters from the Great Lakes Basin as indicated in results from other water supplies on DWSP.

Alpha BHC was detected at trace levels; once in the raw water, three times in the treated water and once in the Site 1 water.

Lindane was detected at trace levels; once in the raw water, ten times in the treated water and once in the Site 1 water.

Atrazine was detected in the raw water in January, July, August and September at levels ranging from 510 to 1820 ng/L. It was also detected in the treated water in January, July, August and October at levels ranging from 610 to 1860 ng/L. The Interim Maximum Acceptable Concentration (IMAC) set by Health and Welfare Canada for Atrazine in drinking water is 60000 ng/L. Atrazine was also detected at trace levels, five times in the raw water and treated

water.

Des-ethyl Atrazine is a breakdown product of Atrazine. It was detected at trace levels; four times in the raw water and six times in the treated water.

Des-ethyl Simazine is a breakdown product of Simazine. It was detected at a trace level in one treated water sample.

Atratone was detected at trace levels; once in the raw water and once in the treated water.

Cyanazine was detected at trace levels; once in the raw water and once in the treated water.

Metolachlor was detected at trace levels; once in the raw water and once in the treated water.

Specific Pesticides

Results of the Specific Pesticides scan showed that no parameters were detected.

Phenolics

The maximum desirable concentration of phenolic substances in drinking water is 2.0 ug/L. This limit has been set to prevent the occurrence of undesirable tastes and odours, particularly in

chlorinated water. Phenolics were detected in the raw water ranging from 1.0 ug/L to 6.8 ug/L and in the treated water ranging from 1.4 ug/L to 6.2 ug/L. Phenolic compounds are present in the aquatic environment as a result of natural and/or industrial processes.

Polyaromatic Hydrocarbons (PAHs)

Results of the PAH scan showed that no PAHs were detected.

Volatiles

The results of the Volatiles scan showed that eight parameters, other than Trihalomethanes(THMs), were detected:

Benzene
Toluene
Ethylbenzene
Meta-Xylene
Ortho-Xylene
Styrene
1,1,1-Trichloroethane
Tetrachloroethylene

The detection of benzene, ethylbenzene, toluene and the xylenes at low, trace levels is a laboratory artifact derived from the analytical methodology.

The detected trace levels of Styrene are also considered to be laboratory artifacts resulting from the polystyrene shipping

containers. The sporadic background levels from this source are in the order of 0.05 µg/L.

1,1,1-Trichloroethane was detected at trace levels, five times in the raw water.

Tetrachloroethylene (T-Chloroethylene) was detected at trace levels, six times in the treated water.

Trihalomethanes (THMs) are known to be produced during the water treatment process and will always occur in chlorinated surface waters. THMs are comprised of Chloroform, Chlorodibromomethane and Dichlorobromomethane. Bromoform occurs occasionally. Results are reported for the individual compounds as well as for total THMs.

Chloroform, Chlorodibromomethane, Dichlorobromomethane and total THMs were always detected in all treated waters. All Total THM occurrences, ranging from 120 to 193 ug/L, were well below the ODWO of 350 ug/L. THMs were detected six times in the raw water.

CONCLUSIONS

The Cayuga Water Treatment Plant for the sample year of 1989 produced good quality water that was maintained in the distribution system.

No health related guidelines, for organic or inorganic parameters were exceeded during 1989.

Several pesticides were detected at this supply, as might be expected from the agricultural nature of the watershed. While none of the pesticides measured on DWSP exceeded drinking water guidelines, consideration should be given to examining suitable treatment processes such as powdered activated carbon.

The water at the Cayuga supply is hard and the treated water exceeds the objective for colour on occasion. The results indicate an adverse impact on source water quality as a result of agricultural activity in the watershed.

RECOMMENDATIONS

One recommendation can be made:

1) Consideration should be given to the application of powdered activated carbon for pesticide removal.

TABLE 3

DRINKING WATER SURVEILLANCE PROGRAM CAYUGA WTP SAMPLE DAY CONDITIONS FOR 1989

SAMPLE DAY CONDITIONS			TREATMENT CHEMICAL DOSAGES (MG/L)		
			COAGULATION AID	COAGULATION	POST-CHLORINATION
			SODIUM SILICATE	POLYALUMINUM CHLORIDE	CHLORINE
DATE	RETENTION TIME(HRS)	FLOW (1000M3)			
JAN 03	1.0	.5	.	23.00	4.08
FEB 07	1.0	.6	5.00	18.40	4.08
MAR 06	1.0	.6	.	15.60	4.49
APR 03	1.0	.6	.	33.10	4.08
MAY 01	1.0	.6	.	18.40	2.45
JUN 05	1.0	.5	.	28.00	3.68
JUL 04	1.0	.7	.	18.40	3.27
AUG 08	1.0	.6	.	18.40	3.27
SEP 05	1.0	.7	.	16.50	2.86
OCT 02	1.0	.6	.	12.88	2.45
NOV 01	1.0	.6	.	7.36	2.45
DEC 18	1.0	.6	.	9.20	6.94

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM CAYUGA

SUMMARY TABLE OF RESULTS (1989)

SCAN	PARAMETER	RAW			TREATED			SITE 1		
		TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE
BACTERIOLOGICAL	FECAL COLIFORM MF	12	10	0	.	.	.	.	.	.
	STANDRD PLATE CNT MF	.	.	.	12	9	0	1	1	0
	TOTAL COLIFORM MF	12	8	0	12	2	0	1	0	0
	T COLIFORM BCKGRD MF	12	12	0	12	3	0	1	1	0
*TOTAL SCAN BACTERIOLOGICAL		36	30	0	36	14	0	3	2	0
*TOTAL GROUP BACTERIOLOGICAL		36	30	0	36	14	0	3	2	0
CHEMISTRY (FLD)	FLD CHLORINE (COMB)	.	.	.	12	12	0	.	.	.
	FLD CHLORINE FREE	.	.	.	12	12	0	.	.	.
	FLD CHLORINE (TOTAL)	.	.	.	12	12	0	.	.	.
	FLD PH	10	10	0	10	10	0	2	2	0
	FLD TEMPERATURE	12	12	0	12	12	0	2	2	0
	FLD TURBIDITY	12	12	0	12	12	0	.	.	.
*TOTAL SCAN CHEMISTRY (FLD)		34	34	0	70	70	0	4	4	0
CHEMISTRY (LAB)	ALKALINITY	12	12	0	12	12	0	2	2	0
	CALCIUM	12	12	0	12	12	0	2	2	0
	CYANIDE	12	0	1	12	0	1	1	0	0
	CHLORIDE	12	12	0	12	12	0	2	2	0
	COLOUR	12	12	0	12	12	0	2	2	0
	CONDUCTIVITY	12	12	0	12	12	0	2	2	0

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM CAYUGA

SUMMARY TABLE OF RESULTS (1989)

SCAN	PARAMETER	RAW			TREATED			SITE 1		
		TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE
CHEMISTRY (LAB)	FLUORIDE	12	12	0	12	12	0	2	2	0
	HARDNESS	12	12	0	12	12	0	2	2	0
	IONCAL	12	12	0	12	12	0	2	2	0
	LANGELIERS INDEX	12	12	0	12	12	0	2	2	0
	MAGNESIUM	12	12	0	12	12	0	2	2	0
	SODIUM	12	12	0	12	12	0	2	2	0
	AMMONIUM TOTAL	12	10	1	12	4	7	2	0	2
	NITRITE	12	12	0	12	3	9	2	1	1
	TOTAL NITRATES	12	12	0	12	12	0	2	2	0
	NITROGEN TOT KJELD	12	12	0	12	12	0	2	2	0
	PH	12	12	0	12	12	0	2	2	0
	PHOSPHORUS FIL REACT	12	12	0	12	3	8	.	.	.
	PHOSPHORUS TOTAL	12	12	0	12	8	4	.	.	.
	SULPHATE	12	12	0	12	12	0	2	2	0
	TURBIDITY	12	12	0	12	12	0	2	2	0
*TOTAL SCAN CHEMISTRY (LAB)		252	238	2	252	210	29	37	33	3
METALS	SILVER	12	0	7	12	0	6	2	0	2
	ALUMINUM	12	12	0	12	12	0	2	2	0
	ARSENIC	12	4	8	12	1	10	2	0	2
	BARIUM	12	12	0	12	12	0	2	2	0
	BORON	12	12	0	12	12	0	2	2	0
	BERYLLIUM	12	0	11	12	0	9	2	0	1

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM CAYUGA

SUMMARY TABLE OF RESULTS (1989)

SCAN	PARAMETER	RAW			TREATED			SITE 1		
		TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE
METALS	CADMIUM	12	0	4	12	0	5	2	1	0
	COBALT	12	0	11	12	0	12	2	0	2
	CHROMIUM	12	10	2	12	8	4	2	2	0
	COPPER	12	12	0	12	11	1	2	2	0
	IRON	12	11	1	12	1	8	2	2	0
	MERCURY	12	3	7	12	0	9	1	0	0
	MANGANESE	12	12	0	12	12	0	2	2	0
	MOLYBDENUM	12	11	1	12	12	0	2	2	0
	NICKEL	12	7	4	12	7	4	2	1	1
	LEAD	12	11	1	12	10	2	2	2	0
	ANTIMONY	12	12	0	12	11	1	2	2	0
	SELENIUM	12	0	7	12	0	9	2	0	2
	STRONTIUM	12	12	0	12	12	0	2	2	0
	TITANIUM	12	12	0	12	12	0	2	2	0
	THALLIUM	12	1	5	12	0	2	2	0	0
	URANIUM	12	12	0	12	12	0	2	2	0
	VANADIUM	12	12	0	12	6	6	2	0	2
	ZINC	12	12	0	12	12	0	2	2	0
*TOTAL SCAN METALS		288	190	69	288	163	88	47	30	12
*TOTAL GROUP INORGANIC & PHYSICAL		574	462	71	610	443	117	88	67	15
CHLOROAROMATICS	HEXACHLOROBUTADIENE	12	0	0	12	0	0	1	0	0
	123 TRICHLOROBENZENE	12	0	0	12	0	0	1	0	0

TABLE 4

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SUMMARY TABLE OF RESULTS (1989)

SCAN	PARAMETER	RAW			TREATED			SITE 1		
		TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE
CHLOROAROMATICS	1234 T-CHLOROBENZENE	12	0	0	12	0	0	1	0	0
	1235 T-CHLOROBENZENE	12	0	0	12	0	0	1	0	0
	124 TRICHLOROBENZENE	12	0	0	12	0	0	1	0	0
	1245 T-CHLOROBENZENE	12	0	0	12	0	0	1	0	0
	135 TRICHLOROBENZENE	12	0	0	12	0	0	1	0	0
	HCB	12	0	0	12	0	0	1	0	0
	HEXACHLOROETHANE	12	0	0	12	0	0	1	0	0
	OCTACHLOROSTYRENE	12	0	0	12	0	0	1	0	0
	PENTACHLOROBENZENE	12	0	0	12	0	0	1	0	0
	236 TRICHLOROTOLUENE	12	0	0	12	0	0	1	0	0
	245 TRICHLOROTOLUENE	12	0	0	12	0	0	1	0	0
	26A TRICHLOROTOLUENE	12	0	0	12	0	0	1	0	0
*TOTAL SCAN CHLOROAROMATICS		168	0	0	168	0	0	14	0	0
CHLOROPHENOLS	234 TRICHLOROPHENOL	1	0	0	0	0	0	.	.	.
	2345 T-CHLOROPHENOL	1	0	0	0	0	0	.	.	.
	2356 T-CHLOROPHENOL	1	0	0	0	0	0	.	.	.
	245-TRICHLOROPHENOL	1	0	0	0	0	0	.	.	.
	246-TRICHLOROPHENOL	1	0	0	0	0	0	.	.	.
	PENTACHLOROPHENOL	1	0	0	0	0	0	.	.	.
*TOTAL SCAN CHLOROPHENOLS		6	0	0	0	0	0	0	0	0

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM CAYUGA

SUMMARY TABLE OF RESULTS (1989)

SCAN	PARAMETER	RAW			TREATED			SITE 1		
		TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE
PAH	PHENANTHRENE	12	0	0	12	0	0	.	.	.
	ANTHRACENE	12	0	0	12	0	0	.	.	.
	FLUORANTHENE	12	0	0	12	0	0	.	.	.
	PYRENE	12	0	0	12	0	0	.	.	.
	BENZO(A)ANTHRACENE	12	0	0	12	0	0	.	.	.
	CHRYSENE	12	0	0	12	0	0	.	.	.
	DIMETH. BENZ(A)ANTHR	4	0	0	4	0	0	.	.	.
	BENZO(E) PYRENE	12	0	0	12	0	0	.	.	.
	BENZO(B) FLUORANTHEN	12	0	0	12	0	0	.	.	.
	PERYLENE	12	0	0	12	0	0	.	.	.
	BENZO(K) FLUORANTHEN	12	0	0	12	0	0	.	.	.
	BENZO(A) PYRENE	5	0	0	5	0	0	.	.	.
	BENZO(G,H,I) PERYLEN	12	0	0	12	0	0	.	.	.
	DIBENZO(A,H) ANTHRAC	12	0	0	12	0	0	.	.	.
	INDENO(1,2,3-C,D) PY	12	0	0	12	0	0	.	.	.
	BENZO(B) CHRYSENE	12	0	0	12	0	0	.	.	.
	CORONENE	12	0	0	12	0	0	.	.	.
*TOTAL SCAN PAH		189	0	0	189	0	0	0	0	0
PESTICIDES & PCB	ALDRIN	12	0	0	12	0	0	1	0	0
	ALPHA BHC	12	0	1	12	0	3	1	0	1
	BETA BHC	12	0	0	12	0	0	1	0	0
	LINDANE	12	0	11	12	0	10	1	0	1

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM CAYUGA

SUMMARY TABLE OF RESULTS (1989)

SCAN	PARAMETER	RAW			TREATED			SITE 1		
		TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE
PESTICIDES & PCB	ALPHA CHLORDANE	12	0	0	12	0	0	1	0	0
	GAMMA CHLORDANE	12	0	0	12	0	0	1	0	0
	DIELDRIN	12	0	0	12	0	0	1	0	0
	METHOXYCHLOR	12	0	0	12	0	0	1	0	0
	ENDOSULFAN I	12	0	0	12	0	0	1	0	0
	ENDOSULFAN II	12	0	0	12	0	0	1	0	0
	ENDRIN	12	0	0	12	0	0	1	0	0
	ENDOSULFAN SULPHATE	12	0	0	12	0	0	1	0	0
	HEPTACHLOR EPOXIDE	12	0	0	12	0	0	1	0	0
	HEPTACHLOR	12	0	0	12	0	0	1	0	0
	MIREX	12	0	0	12	0	0	1	0	0
	OXYCHLORDANE	12	0	0	12	0	0	1	0	0
	OPDDT	12	0	0	12	0	0	1	0	0
	PCB	12	0	0	12	0	0	1	0	0
	DDD	12	0	0	12	0	0	1	0	0
	PPDDE	12	0	0	12	0	0	1	0	0
	PPDDT	12	0	0	12	0	0	1	0	0
	AMETRINE	12	0	0	12	0	0	1	0	0
	ATRAZINE	12	4	5	12	4	5	1	0	0
	ATRATONE	12	0	1	12	0	1	1	0	0
	CYANAZINE (BLADEX)	12	0	1	12	0	1	1	0	0
	D-ETHYL ATRAZINE	12	0	4	12	0	6	1	0	0
	D-ETHYL SIMAZINE	12	0	0	12	0	1	1	0	0
	PROMETONE	12	0	0	12	0	0	1	0	0
	PROPAZINE	12	0	0	12	0	0	1	0	0

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM CAYUGA

SUMMARY TABLE OF RESULTS (1989)

SCAN	PARAMETER	RAW			TREATED			SITE 1		
		TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE
PESTICIDES & PCB	PROMETRYNE	12	0	0	12	0	0	1	0	0
	METRIBUZIN (SENCOR)	12	0	0	12	0	0	1	0	0
	SIMAZINE	12	0	0	12	0	0	1	0	0
	ALACHLOR (LASSO)	12	0	0	12	0	0	1	0	0
	METOLACHLOR	12	0	1	12	0	1	1	0	0
*TOTAL SCAN PESTICIDES & PCB		408	4	24	408	4	28	34	0	2
PHENOLICS	PHENOLICS	12	12	0	12	12	0	.	.	.
*TOTAL SCAN PHENOLICS		12	12	0	12	12	0	0	0	0
SPECIFIC PESTICIDES	TOXAPHENE	12	0	0	12	0	0	1	0	0
	2,4,5-T	1	0	0	0	0	0	.	.	.
	2,4-D	1	0	0	0	0	0	.	.	.
	2,4-DB	1	0	0	0	0	0	.	.	.
	2,4 D PROPIONIC ACID	1	0	0	0	0	0	.	.	.
	DICAMBA	1	0	0	0	0	0	.	.	.
	PICHLORAM	0	0	0	0	0	0	.	.	.
	SILVEX	1	0	0	0	0	0	.	.	.
	DIAZINON	1	0	0	1	0	0	.	.	.
	DICHLOROVOS	1	0	0	1	0	0	.	.	.
	CHLORPYRIFOS	1	0	0	1	0	0	.	.	.

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM CAYUGA

SUMMARY TABLE OF RESULTS (1989)

SCAN	PARAMETER	RAW			TREATED			SITE 1		
		TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE
SPECIFIC PESTICIDES	ETHION	1	0	0	1	0	0	.	.	.
	AZINPHOS-METHYL	0	0	0	0	0	0	.	.	.
	MALATHION	1	0	0	1	0	0	.	.	.
	MEVINPHOS	1	0	0	1	0	0	.	.	.
	METHYL PARATHION	1	0	0	1	0	0	.	.	.
	METHYLTRITHION	1	0	0	1	0	0	.	.	.
	PARATHION	1	0	0	1	0	0	.	.	.
	PHORATE	1	0	0	1	0	0	.	.	.
	RELDAN	1	0	0	1	0	0	.	.	.
	RONNEL	1	0	0	1	0	0	.	.	.
	AMINOCARB	0	0	0	0	0	0	.	.	.
	BENOMYL	0	0	0	0	0	0	.	.	.
	BUX	0	0	0	0	0	0	.	.	.
	CARBOFURAN	1	0	0	1	0	0	.	.	.
	CICP	1	0	0	1	0	0	.	.	.
	DIALLATE	1	0	0	1	0	0	.	.	.
	EPTAM	0	0	0	0	0	0	.	.	.
	IPC	1	0	0	1	0	0	.	.	.
	PROPOXUR	1	0	0	1	0	0	.	.	.
	CARBARYL	1	0	0	1	0	0	.	.	.
	BUTYLATE	1	0	0	1	0	0	.	.	.
*TOTAL SCAN SPECIFIC PESTICIDES		37	0	0	31	0	0	1	0	0
VOLATILES	BENZENE	12	0	2	12	0	2	1	0	0

TABLE 4

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SUMMARY TABLE OF RESULTS (1989)

SCAN	PARAMETER	RAW			TREATED			SITE 1		
		TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE
VOLATILES	TOLUENE	12	0	0	12	0	4	1	0	0
	ETHYLBENZENE	12	0	0	12	0	3	1	0	0
	P-XYLENE	12	0	0	12	0	0	1	0	0
	M-XYLENE	12	0	0	12	0	2	1	0	0
	O-XYLENE	12	0	1	12	0	4	1	0	0
	STYRENE	12	0	3	12	0	5	1	0	1
	1,1 DICHLOROETHYLENE	12	0	0	12	0	0	1	0	0
	METHYLENE CHLORIDE	12	0	0	12	0	0	1	0	0
	T1,2DICHLOROETHYLENE	12	0	0	12	0	0	1	0	0
	1,1 DICHLOROETHANE	12	0	0	12	0	0	1	0	0
	CHLOROFORM	12	3	7	12	12	0	1	1	0
	111, TRICHLOROETHANE	12	0	5	12	0	0	1	0	0
	1,2 DICHLOROETHANE	12	0	0	12	0	0	1	0	0
	CARBON TETRACHLORIDE	12	0	0	12	0	0	1	0	0
	1,2 DICHLOROPROPANE	12	0	0	12	0	0	1	0	0
	TRICHLOROETHYLENE	12	0	0	12	0	0	1	0	0
	DICHLOROBROMOMETHANE	12	1	3	12	12	0	1	1	0
	112 TRICHLOROETHANE	12	0	0	12	0	0	1	0	0
	CHLORODIBROMOMETHANE	12	0	1	12	11	1	1	0	1
	T-CHLOROETHYLENE	12	0	0	12	0	6	1	0	0
	BROMOFORM	12	0	0	12	0	1	1	0	0
	1122 T-CHLOROETHANE	12	0	0	12	0	0	1	0	0
	CHLOROBENZENE	12	0	0	12	0	0	1	0	0
	1,4 DICHLOROBENZENE	12	0	0	12	0	0	1	0	0
	1,3 DICHLOROBENZENE	12	0	0	12	0	0	1	0	0

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM CAYUGA

SUMMARY TABLE OF RESULTS (1989)

SCAN	PARAMETER	RAW			TREATED			SITE 1		
		TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE
VOLATILES	1,2 DICHLOROBENZENE	12	0	0	12	0	0	1	0	0
	ETHLYENE DIBROMIDE	12	0	0	12	0	0	1	0	0
	TOTL TRIHALOMETHANES	12	1	5	12	12	0	1	1	0
*TOTAL SCAN VOLATILES		348	5	27	348	47	28	29	3	2
*TOTAL GROUP ORGANIC		1168	21	51	1156	63	56	78	3	4
TOTAL		1778	513	122	1802	520	173	169	72	19

KEY TO TABLE 5 and 6

A ONTARIO DRINKING WATER OBJECTIVES (ODWO)
1. Maximum Acceptable Concentration (MAC)
1+. MAC for Total Trihalomethanes
1*. MAC for Bacteriological Analyses
Poor water quality is indicated when :
- total coliform counts > 0 < 5
- P/A Bottle Test is present after 48 hours
- Aeromonas organisms are detected in more than 25% of samples in a single submission or in successive submissions from the same sampling site
- Pseudomonas Aeruginosa, Staphylococcus Aureus and members of the Fecal Streptococcus group should not be detected in any sample
- Standard Plate Count should not exceed 500 organisms per ml at 35 ^{0}C within 48 hours

2. Interim Maximum Acceptable Concentration (IMAC)
3. Maximum Desirable Concentration (MDC)
4. Aesthetic or Recommended Operational Guideline
- hardness levels between 80 and 100 mg/L as calcium carbonate are considered to provide an acceptable balance between corrosion and incrustation, water supplies with a hardness >200 mg/L are considered poor and those in excess of 500 mg/L are unacceptable.

B HEALTH & WELFARE CANADA (H&W)
1. Maximum Acceptable Concentration (MAC)
2. Proposed MAC
3. Interim MAC
4. Aesthetic Objective (AO) (for xylenes, a total)

C WORLD HEALTH ORGANIZATION (WHO)
1. Guideline Value (GV)
2. Tentative GV
3. Aesthetic GV

D US ENVIRONMENTAL PROTECTION AGENCY (EPA)
1. Maximum Contaminant Level (MCL)
2. Suggested No-Adverse Effect Level (SNAEL)
3. Lifetime Health Advisory
4. EPA Ambient Water Quality Criteria
5. Maximum Contaminant Level Goal (MCLG)

F EUROPEAN ECONOMIC COMMUNITY (EEC)
1. Health Related Guideline Level
2. Aesthetic Guideline Level
3. Maximum Admissable Concentration (MADC)

G CALIFORNIA STATE DEPARTMENT OF HEALTH-GUIDELINE VALUE

H USSR MAXIMUM PERMISSIBLE CONCENTRATION

I NEW YORK STATE AMBIENT WATER GUIDELINE

N/A NONE AVAILABLE

INTERPRETATION OF DATA

The interpretation of analytical results that are obtained from measurements near the limit of detection of the measurement process is subject to greater uncertainty than those at higher concentrations. The principle areas of concern relate to whether the substance has actually been detected, whether it has been properly identified, and whether it is an artifact of the measurement process. In other words, false positives can be caused by the instrumentation or the test procedures used, when in fact these compounds are not present in the sample.

There are several methods to treat data from such measurements:
1. Exclude the low-level data because of this uncertainty factor. Studies of long-term environmental trends and modelling may however, be adversely affected by the exclusion of such data.
2. Qualify these data so the user is aware of the greater uncertainty associated with their use.

For the Drinking Water Surveillance Program, measurements near the limit of detection of the measurement process are reported with the code "<T". Results qualified by "W" indicate a zero measurement. These results are reported for purposes of modelling and long-term trend analysis and no significance should be attributed to a single determination of a substance below "T" (a single determination may well be a false positive). Repeat analysis or additional data are needed before it can be stated with certainty that the substance in question was truly present. On the other hand, it is less likely that repeated detection of a substance at or near the limit of detection at a specific location is solely due to an artifact in the measurement system, and more likely represents a true positive. The average of such data however, is still only an estimate of the amount of substance present subject to the possible biases of the method used.

LABORATORY RESULTS, REMARK DESCRIPTIONS

.	No Sample Taken
BDL	Below Minimum Measurable Amount
<T	Greater Than Detection Limit But Not Confident (SEE INTERPRETATION OF RESULTS ABOVE)
>	Results Are Greater Than The Upper Limit
<=>	Approximate Result
!CS	No Data: Contamination Suspected
!IL	No Data: Sample Incorrectly Labelled
!IS	No Data: Insufficient Sample
!IV	No Data: Inverted Septum
!LA	No Data: Laboratory Accident
!LD	No Data: Test Queued After Sample Discarded

!LA	No Data: Laboratory Accident
!LD	No Data: Test Queued After Sample Discarded
!NA	No Data: No Authorization To Perform Reanalysis
!NP	No Data: No Procedure
!NR	No Data: Sample Not Received
!OP	No Data: Obscured Plate
!QU	No Data: Quality Control Unacceptable
!PE	No Data: Procedural Error - Sample Discarded
!PH	No Data: Sample pH Outside Valid Range
!RE	No Data: Received Empty
!RO	No Data: See Attached Report (no numeric results)
!SM	No Data: Sample Missing
!SS	No Data: Send Separate Sample Properly Preserved
!UI	No Data: Indeterminant Interference
!TX	No Data: Time Expired
A3C	Approximate, Total Count Exceeded 300 Colonies
APL	Additional Peak, Large, Not Priority Pollutant
APS	Additional Peak, Less Than, Not Priority Pollutant
CIC	Possible Contamination, Improper Cap
CRO	Calculated Result Only
PPS	Test Performed On Preserved Sample
RMP	P and M-Xylene Not Separated
RRV	Rerun Verification
RVU	Reported Value Unusual
SPS	Several Peaks, Small, Not Priority Pollutant
UCR	Unreliable: Could Not Confirm By Reanalysis
UCS	Unreliable: Contamination Suspected
UIN	Unreliable: Indeterminant Interference
XP	Positive After X Number of Hours
T# (T06)	Result Taken After # Hours

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM CAYUGA WTP 1989

	WATER TREATMENT PLANT			DISTRIBUTION SYSTEM	
	RAW	TREATED	SITE 1		
			STANDING	FREE FLOW	
BACTERIOLOGICAL					
FECAL COLIFORM MF (CT/100ML)			DET'N LIMIT = 0		GUIDELINE = 0 (A1)
JAN	6	.	.	.	
FEB	12 T48	.	.	.	
MAR	121 T48	.	.	.	
APR	4 <=>	.	.	.	
MAY	8	.	.	.	
JUN	26 A3C	.	.	.	
JUL	28	.	.	.	
AUG	104 A3C	.	.	.	
SEP	164 A3C	.	.	.	
OCT	56 A3C	.	.	.	
NOV	8	.	.	.	
DEC	BDL	.	.	.	
STANDRD PLATE CNT MF ( )			DET'N LIMIT = 0		GUIDELINE = 500/ML (A1)
JAN	.	17	.	.	
FEB	.	330 T48	.	50 T24	
MAR	.	5 <=>	.	.	
APR	.	590 T48	.	.	
MAY	.	30 <=>	.	.	
JUN	.	1010	.	.	
JUL	.	24000 >	.	.	
AUG	.	3 <=>	.	.	
SEP	.	19	.	.	
OCT	.	26	.	.	
NOV	.	15	.	.	
DEC	.	13	.	.	
TOTAL COLIFORM MF (CT/100ML)			DET'N LIMIT = 0		GUIDELINE = 5/100ML(A1)
JAN	2900 A3C	0	.	.	
FEB	17000 T48	1 T48	.	0 T24	
MAR	6000 A3C	0 T48	.	.	
APR	1200 A3C	0 T48	.	.	
MAY	260 A3C	0	.	.	
JUN	500 <=>	0	.	.	
JUL	140 <=>	0	.	.	
AUG	11000	0	.	.	
SEP	7500 A3C	0	.	.	
OCT	3600 A3C	0	.	.	
NOV	200 <=>	4	.	.	
DEC	60 <=>	0	.	.	
T COLIFORM BCKGRD MF (CT/100ML)			DET'N LIMIT = 0		GUIDELINE = N/A
JAN	40000 >	1	.	.	
FEB	08000 T48	0 T48	.	7 T24	
MAR	10000 A3C	0 T48	.	.	

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM CAYUGA WTP 1989

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM	
	RAW	TREATED	SITE 1	
			STANDING	FREE FLOW
APR	61000 A3C	0 T48	.	.
MAY	48000 >	0	.	.
JUN	40000 >	4	.	.
JUL	48000 >	0	.	.
AUG	60000	0	.	.
SEP	22000 A3C	0	.	.
OCT	60000 A3C	0	.	.
NOV	44000 A3C	2	.	.
DEC	3900 A3C	0	.	.

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM CAYUGA WTP 1989

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM	
	RAW	TREATED	SITE 1	
			STANDING	FREE FLOW
CHEMISTRY (FLD)				
FLD CHLORINE (COMB) ( )			DET'N LIMIT = N/A	GUIDELINE = N/A
JAN	.	1.000	.	.
FEB	.	.600	.	.
MAR	.	.600	.	.
APR	.	.600	.	.
MAY	.	.600	.	.
JUN	.	.500	.	.
JUL	.	.600	.	.
AUG	.	.250	.	.
SEP	.	.600	.	.
OCT	.	.400	.	.
NOV	.	.600	.	.
DEC	.	.600	.	.
FLD CHLORINE FREE ( )			DET'N LIMIT = N/A	GUIDELINE = N/A
JAN	.	1.000	.	.
FEB	.	1.400	.	.
MAR	.	1.400	.	.
APR	.	1.400	.	.
MAY	.	1.400	.	.
JUN	.	.350	.	.
JUL	.	1.400	.	.
AUG	.	1.750	.	.
SEP	.	1.400	.	.
OCT	.	1.600	.	.
NOV	.	1.400	.	.
DEC	.	1.400	.	.
FLD CHLORINE (TOTAL) ( )			DET'N LIMIT = N/A	GUIDELINE = N/A
JAN	.	2.000	.	.
FEB	.	2.000	.	.
MAR	.	2.000	.	.
APR	.	2.000	.	.
MAY	.	2.000	.	.
JUN	.	.850	.	.
JUL	.	2.000	.	.
AUG	.	2.000	.	.
SEP	.	2.000	.	.
OCT	.	2.000	.	.
NOV	.	2.000	.	.
DEC	.	2.000	.	.
FLD PH (DMNSLESS)			DET'N LIMIT = N/A	GUIDELINE = 6.5-8.5(A4)
FEB	7.600	7.800	7.600	7.600
MAR	7.800	7.800	.	.
MAY	8.200	8.400	.	.

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM CAYUGA WTP 1989

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM		
	RAW	TREATED	SITE 1		
			STANDING	FREE FLOW	
JUN	7.800	7.600	.	.	
JUL	8.200	8.000	.	.	
AUG	8.000	7.800	.	.	
SEP	8.000	7.800	.	.	
OCT	8.200	8.000	.	.	
NOV	8.000	8.000	.	.	
DEC	8.000	7.800	.	.	
FLD TEMPERATURE (DEG.C)			DET'N LIMIT = N/A		GUIDELINE = 15 (A1)
JAN	1.500	1.500	.	.	
FEB	1.000	1.000	2.300	.700	
MAR	1.000	1.000	.	.	
APR	2.000	2.000	.	.	
MAY	12.000	12.000	.	.	
JUN	20.000	20.000	.	.	
JUL	24.000	24.000	.	.	
AUG	21.000	21.000	.	.	
SEP	21.000	21.000	.	.	
OCT	17.000	17.000	.	.	
NOV	9.500	9.500	.	.	
DEC	1.000	1.000	.	.	
FLD TURBIDITY (FTU)			DET'N LIMIT = N/A		GUIDELINE = 1.0 (A1)
JAN	14.000	.700	.	.	
FEB	10.000	1.000	.	.	
MAR	9.700	.600	.	.	
APR	35.000	.200	.	.	
MAY	15.000	.500	.	.	
JUN	25.000	.300	.	.	
JUL	18.000	.400	.	.	
AUG	12.000	.800	.	.	
SEP	15.000	.600	.	.	
OCT	15.000	.800	.	.	
NOV	11.000	.700	.	.	
DEC	4.600	.700	.	.	

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM CAYUGA WTP 1989

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM	
	RAW	TREATED	SITE 1	
			STANDING	FREE FLOW
CHEMISTRY (LAB)				
ALKALINITY (MG/L)			DET'N LIMIT = .200	GUIDELINE = 30-500 (A4)
JAN	177.400	163.400	.	.
FEB	190.100	176.400	175.200	174.200
MAR	223.600	204.700	.	.
APR	168.500	154.200	.	.
MAY	200.400	192.300	.	.
JUN	196.400	181.200	.	.
JUL	202.300	195.000	.	.
AUG	169.100	158.400	.	.
SEP	166.400	158.700	.	.
OCT	173.000	165.400	.	.
NOV	211.600	205.500	.	.
DEC	247.700	232.600	.	.
CALCIUM (MG/L)			DET'N LIMIT = .100	GUIDELINE = 100 (F2)
JAN	72.800	79.200	.	.
FEB	79.800	77.800	77.200	76.000
MAR	112.000	112.000	.	.
APR	72.200	71.200	.	.
MAY	94.000	95.000	.	.
JUN	75.400	74.400	.	.
JUL	87.200	87.600	.	.
AUG	77.800	76.400	.	.
SEP	77.600	76.600	.	.
OCT	82.600	83.000	.	.
NOV	88.200	88.000	.	.
DEC	104.600	112.000	.	.
CYANIDE (MG/L)			DET'N LIMIT = 0.001	GUIDELINE = .200 (A1)
JAN	BDL	BDL	.	.
FEB	BDL	BDL	.	BDL
MAR	BDL	BDL	.	.
APR	BDL	BDL	.	.
MAY	BDL	BDL	.	.
JUN	BDL	BDL	.	.
JUL	BDL	BDL	.	.
AUG	BDL	BDL	.	.
SEP	BDL	BDL	.	.
OCT	BDL	BDL	.	.
NOV	BDL	.002 <T	.	.
DEC	.004 <T	BDL	.	.
CHLORIDE (MG/L)			DET'N LIMIT = .200	GUIDELINE = 250 (A3)
JAN	55.600	66.400	.	.
FEB	39.700	52.900	63.100	62.900
MAR	143.000	153.000	.	.

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM CAYUGA WTP 1989

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM	
	RAW	TREATED	SITE 1	
			STANDING	FREE FLOW
APR	36.100	49.000	.	.
MAY	64.300	72.400	.	.
JUN	44.600	58.700	.	.
JUL	48.200	55.700	.	.
AUG	71.900	79.300	.	.
SEP	84.100	91.500	.	.
OCT	79.600	87.400	.	.
NOV	71.700	75.900	.	.
DEC	67.800	78.600	.	.
COLOUR (HZU)			DET'N LIMIT = .5	GUIDELINE = 5.0 (A3)
JAN	22.500	4.500	.	.
FEB	31.000	6.500	7.500	8.000
MAR	26.500	5.000	.	.
APR	23.000	3.000	.	.
MAY	14.500	4.500	.	.
JUN	23.500	6.500	.	.
JUL	25.000	10.000	.	.
AUG	19.500	4.500	.	.
SEP	15.000	5.000	.	.
OCT	14.500	4.500	.	.
NOV	17.000	5.500	.	.
DEC	20.000	6.500	.	.
CONDUCTIVITY (UMHO/CM)			DET'N LIMIT = 1	GUIDELINE = 400 (F2)
JAN	663	687	.	.
FEB	626	651	679	671
MAR	1140	1158	.	.
APR	567	591	.	.
MAY	800	816	.	.
JUN	625	664	.	.
JUL	688	707	.	.
AUG	764	779	.	.
SEP	822	839	.	.
OCT	830	850	.	.
NOV	822	831	.	.
DEC	893	911	.	.
FLUORIDE (MG/L)			DET'N LIMIT = .01	GUIDELINE = 2.400 (A1)
JAN	.120	.120	.	.
FEB	.140	.120	.120	.100
MAR	.180	.140	.	.
APR	.140	.100	.	.
MAY	.160	.160	.	.
JUN	.120	.120	.	.
JUL	.200	.160	.	.
AUG	.160	.160	.	.

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM CAYUGA WTP 1989

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM		
	RAW	TREATED	SITE 1		
			STANDING	FREE FLOW	
SEP	.220	.220	.	.	
OCT	.220	.220	.	.	
NOV	.200	.180	.	.	
DEC	.160	.140	.	.	
HARDNESS (MG/L)			DET'N LIMIT = .500		GUIDELINE = 80-100 (A4)
JAN	258.000	273.000	.	.	
FEB	275.000	270.000	269.000	266.000	
MAR	387.000	390.000	.	.	
APR	249.000	247.000	.	.	
MAY	336.000	338.000	.	.	
JUN	268.000	268.000	.	.	
JUL	307.000	309.000	.	.	
AUG	295.000	294.000	.	.	
SEP	295.000	293.000	.	.	
OCT	307.000	308.000	.	.	
NOV	320.000	321.000	.	.	
DEC	364.400	386.000	.	.	
IONCAL (DMNSLESS)			DET'N LIMIT = N/A		GUIDELINE = N/A
JAN	4.485	1.487	.	.	
FEB	2.781	3.286	2.475	3.265	
MAR	.601	2.463	.	.	
APR	.780	.363	.	.	
MAY	2.796	3.661	.	.	
JUN	.810	1.119	.	.	
JUL	1.437	2.074	.	.	
AUG	.998	.804	.	.	
SEP	2.003	3.558	.	.	
OCT	1.866	2.232	.	.	
NOV	2.587	2.633	.	.	
DEC	4.711	.861	.	.	
LANGELIERS INDEX (DMNSLESS)			DET'N LIMIT = N/A		GUIDELINE = N/A
JAN	.967	.876	.	.	
FEB	.978	.724	.876	.777	
MAR	1.211	1.092	.	.	
APR	1.028	.991	.	.	
MAY	1.224	1.210	.	.	
JUN	1.078	.995	.	.	
JUL	.851	.836	.	.	
AUG	1.070	1.083	.	.	
SEP	1.019	.992	.	.	
OCT	1.132	.994	.	.	
NOV	1.279	1.085	.	.	
DEC	1.418	1.369	.	.	

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM CAYUGA WTP 1989

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM	
	RAW	TREATED	SITE 1	
			STANDING	FREE FLOW
MAGNESIUM (MG/L)			DET'N LIMIT = .050	GUIDELINE = 30 (F2)
JAN	18.400	18.300	.	.
FEB	18.500	18.200	18.600	18.600
MAR	26.200	26.700	.	.
APR	16.600	16.800	.	.
MAY	24.700	24.500	.	.
JUN	19.200	19.800	.	.
JUL	21.700	21.900	.	.
AUG	24.500	25.100	.	.
SEP	24.600	24.600	.	.
OCT	24.400	24.500	.	.
NOV	24.200	24.500	.	.
DEC	25.050	25.900	.	.
SODIUM (MG/L)			DET'N LIMIT = .200	GUIDELINE = 200 (C3)
JAN	30.600	33.600	.	.
FEB	22.200	27.400	33.400	32.400
MAR	89.200	91.400	.	.
APR	20.200	22.600	.	.
MAY	39.200	42.000	.	.
JUN	25.800	31.000	.	.
JUL	29.600	31.400	.	.
AUG	45.200	47.000	.	.
SEP	56.000	57.200	.	.
OCT	51.400	52.400	.	.
NOV	48.200	48.200	.	.
DEC	41.200	41.600	.	.
AMMONIUM TOTAL (MG/L)			DET'N LIMIT = 0.002	GUIDELINE = .05 (F2)
JAN	.040	.020	.	.
FEB	.410	.006 <T	.008 <T	.008 <T
MAR	.502	.006 <T	.	.
APR	BDL	.010	.	.
MAY	1.000	1.000	.	.
JUN	.094	.010	.	.
JUL	.006 <T	.008 <T	.	.
AUG	.016	.008 <T	.	.
SEP	.032	.006 <T	.	.
OCT	.012	.002 <T	.	.
NOV	.014	.006 <T	.	.
DEC	.598	BDL	.	.
NITRITE (MG/L)			DET'N LIMIT = 0.001	GUIDELINE = 1.000 (A1)
JAN	.160	.006	.	.
FEB	.605	.003 <T	.008	.004 <T
MAR	.047	.001 <T	.	.
APR	.164	.002 <T	.	.

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM CAYUGA WTP 1989

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM	
	RAW	TREATED	SITE 1	
			STANDING	FREE FLOW
MAY	.050	.001 <T	.	.
JUN	.134	.005	.	.
JUL	.200	.002 <T	.	.
AUG	.015	.002 <T	.	.
SEP	.014	.005	.	.
OCT	.014	.001 <T	.	.
NOV	.154	.001 <T	.	.
DEC	.060	.002 <T	.	.
TOTAL NITRATES (MG/L)			DET'N LIMIT = .020	GUIDELINE = 10.000 (A1)
JAN	5.850	5.210	.	.
FEB	4.050	3.890	3.580	3.610
MAR	4.310	4.320	.	.
APR	4.260	4.130	.	.
MAY	2.760	2.790	.	.
JUN	3.150	2.720	.	.
JUL	1.680	1.410	.	.
AUG	1.180	1.130	.	.
SEP	1.340	1.390	.	.
OCT	2.030	2.060	.	.
NOV	2.420	2.380	.	.
DEC	4.560	4.550	.	.
NITROGEN TOT KJELD (MG/L)			DET'N LIMIT = .020	GUIDELINE = N/A
JAN	1.050	.460	.	.
FEB	1.580	.620	.490	.460
MAR	1.290	.540	.	.
APR	.870	.460	.	.
MAY	.770	.460	.	.
JUN	1.200	.630	.	.
JUL	1.450	.710	.	.
AUG	.900	.520	.	.
SEP	.840	.630	.	.
OCT	.800	.500	.	.
NOV	.760	.500	.	.
DEC	1.230	.520	.	.
PH (DMNSLESS)			DET'N LIMIT = N/A	GUIDELINE = 6.5-8.5(A4)
JAN	8.330	8.240	.	.
FEB	8.270	8.060	8.220	8.130
MAR	8.310	8.230	.	.
APR	8.410	8.420	.	.
MAY	8.430	8.430	.	.
JUN	8.380	8.340	.	.
JUL	8.080	8.080	.	.
AUG	8.430	8.480	.	.
SEP	8.390	8.390	.	.

TABLE 5

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	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM	
	RAW	TREATED	SITE 1	
			STANDING	FREE FLOW
OCT	8.460	8.340	.	.
NOV	8.490	8.310	.	.
DEC	8.490	8.440	.	.
PHOSPHORUS FIL REACT (MG/L)			DET'N LIMIT = .0005	GUIDELINE = N/A
JAN	.067	.001 <T	.	.
FEB	.150	.005	.	.
MAR	.032	.002	.	.
APR	.043	.002	.	.
MAY	.002	.001 <T	.	.
JUN	.029	BDL	.	.
JUL	.025	.001 <T	.	.
AUG	.008	.001 <T	.	.
SEP	.006	.001 <T	.	.
OCT	.005	.002 <T	.	.
NOV	.016	.002 <T	.	.
DEC	.025	.000 <T	.	.
PHOSPHORUS TOTAL (MG/L)			DET'N LIMIT = .002	GUIDELINE = .40 (F2)
JAN	.107	.011	.	.
FEB	.180	.029	.	.
MAR	.081	.013	.	.
APR	.119	.008 <T	.	.
MAY	.066	.011	.	.
JUN	.148	.011	.	.
JUL	.143	.019	.	.
AUG	.100	.011	.	.
SEP	.064	.008 <T	.	.
OCT	.054	.007 <T	.	.
NOV	.043	.005 <T	.	.
DEC	.061	.012	.	.
SULPHATE (MG/L)			DET'N LIMIT = .200	GUIDELINE = 500. (A3)
JAN	59.480	62.810	.	.
FEB	70.630	71.670	70.480	69.090
MAR	133.500	132.710	.	.
APR	53.320	56.660	.	.
MAY	108.090	108.670	.	.
JUN	53.500	62.100	.	.
JUL	86.290	87.270	.	.
AUG	117.670	120.110	.	.
SEP	129.980	133.420	.	.
OCT	128.350	129.960	.	.
NOV	109.660	110.900	.	.
DEC	113.080	108.340	.	.
TURBIDITY (FTU)			DET'N LIMIT = .02	GUIDELINE = 1.00 (A1)

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	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM	
	RAW	TREATED	SITE 1	
			STANDING	FREE FLOW
JAN	11.900	.890	.	.
FEB	11.500	.740	.700	.640
MAR	9.300	.500	.	.
APR	41.000	.730	.	.
MAY	19.600	1.200 RRV	.	.
JUN	46.000	.500	.	.
JUL	.470	.630	.	.
AUG	30.000	.800	.	.
SEP	22.000	.650	.	.
OCT	21.000	.420	.	.
NOV	18.000	.580	.	.
DEC	5.300	.430	.	.

TABLE 5

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	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM	
	RAW	TREATED	SITE 1	
			STANDING	FREE FLOW
METALS				
SILVER (UG/L)			DET'N LIMIT = .020	GUIDELINE = 50. (A1)
JAN	BDL	.050 <T	.	.
FEB	.050 <T	.030 <T	.030 <T	.030 <T
MAR	.040 <T	.050 <T	.	.
APR	.060 <T	.110 <T	.	.
MAY	BDL	BDL	.	.
JUN	.060 <T	.030 <T	.	.
JUL	BDL	BDL	.	.
AUG	.030 <T	BDL	.	.
SEP	.070 <T	.060 <T	.	.
OCT	BDL	BDL	.	.
NOV	.040 <T	BDL	.	.
DEC	BDL	BDL	.	.
ALUMINUM (UG/L)			DET'N LIMIT = .050	GUIDELINE = 100.(A4)
JAN	371.200	139.200	.	.
FEB	266.800	232.000	58.000	58.000
MAR	290.000	102.080	.	.
APR	348.000	84.680	.	.
MAY	208.800	371.200	.	.
JUN	150.000	350.000	.	.
JUL	330.000	470.000	.	.
AUG	270.000	260.000	.	.
SEP	210.000	310.000	.	.
OCT	260.000	330.000	.	.
NOV	140.000	280.000	.	.
DEC	91.000	97.000	.	.
ARSENIC (UG/L)			DET'N LIMIT = 0.050	GUIDELINE = 50.0 (A1)
JAN	.470 <T	BDL	.	.
FEB	.650 <T	.370 <T	.260 <T	.160 <T
MAR	1.300	1.000 <T	.	.
APR	.490 <T	.250 <T	.	.
MAY	.810 <T	.930 <T	.	.
JUN	.680 <T	1.900	.	.
JUL	1.400	.960 <T	.	.
AUG	2.000	.580 <T	.	.
SEP	1.500	.790 <T	.	.
OCT	.820 <T	.270 <T	.	.
NOV	.300 <T	.160 <T	.	.
DEC	.850 <T	.440 <T	.	.
BARIUM (UG/L)			DET'N LIMIT = 0.020	GUIDELINE = 1000. (A1)
JAN	32.000	29.000	.	.
FEB	33.000	28.000	34.000	28.000
MAR	41.000	36.000	.	.

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	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM	
	RAW	TREATED	SITE 1	
			STANDING	FREE FLOW
APR	33.000	26.000	.	.
MAY	36.000	32.000	.	.
JUN	33.000	39.000	.	.
JUL	37.000	32.000	.	.
AUG	40.000	34.000	.	.
SEP	40.000	35.000	.	.
OCT	37.000	32.000	.	.
NOV	34.000	31.000	.	.
DEC	35.000	33.000	.	.
BORON (UG/L)				DET'N LIMIT = 0.200 GUIDELINE = 5000. (A1)
JAN	31.000	27.000	.	.
FEB	46.000	100.000	46.000	110.000
MAR	180.000	180.000	.	.
APR	40.000	280.000	.	.
MAY	82.000	190.000	.	.
JUN	61.000	65.000	.	.
JUL	89.000	92.000	.	.
AUG	120.000	75.000	.	.
SEP	110.000	110.000	.	.
OCT	87.000	75.000	.	.
NOV	58.000	59.000	.	.
DEC	69.000	64.000	.	.
BERYLLIUM (UG/L)				DET'N LIMIT = 0.010 GUIDELINE = N/A
JAN	.020 <T	BDL	.	.
FEB	.020 <T	.070 <T	BDL	.050 <T
MAR	.400 <T	.230 <T	.	.
APR	.040 <T	.210 <T	.	.
MAY	.250 <T	.210 <T	.	.
JUN	.110 <T	.180 <T	.	.
JUL	.210 <T	.150 <T	.	.
AUG	.340 <T	BDL	.	.
SEP	.200 <T	.090 <T	.	.
OCT	.060 <T	.020 <T	.	.
NOV	.040 <T	.040 <T	.	.
DEC	BDL	BDL	.	.
CADMIUM (UG/L)				DET'N LIMIT = 0.050 GUIDELINE = 5.000 (A1)
JAN	BDL	BDL	.	.
FEB	BDL	BDL	7.800	BDL
MAR	.110 <T	BDL	.	.
APR	.160 <T	BDL	.	.
MAY	.110 <T	BDL	.	.
JUN	BDL	.060 <T	.	.
JUL	BDL	.130 <T	.	.
AUG	BDL	BDL	.	.

TABLE 5

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	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM	
	RAW	TREATED	SITE 1	
			STANDING	FREE FLOW
SEP	BDL	.080 <T	.	.
OCT	BDL	BDL	.	.
NOV	.100 <T	.090 <T	.	.
DEC	BDL	.080 <T	.	.
COBALT (UG/L)			DET'N LIMIT = 0.020 GUIDELINE = N/A	
JAN	.310 <T	.220 <T	.	.
FEB	.240 <T	.210 <T	.210 <T	.090 <T
MAR	.300 <T	.250 <T	.	.
APR	.280 <T	.110 <T	.	.
MAY	.460 <T	.300 <T	.	.
JUN	BDL	.030 <T	.	.
JUL	.440 <T	.170 <T	.	.
AUG	.530 <T	.250 <T	.	.
SEP	.290 <T	.220 <T	.	.
OCT	.450 <T	.240 <T	.	.
NOV	.340 <T	.210 <T	.	.
DEC	.160 <T	.190 <T	.	.
CHROMIUM (UG/L)			DET'N LIMIT = 0.100 GUIDELINE = 50. (A1)	
JAN	1.600	.160 <T	.	.
FEB	2.900	10.000	2.300	11.000
MAR	12.000	11.000	.	.
APR	1.100	11.000	.	.
MAY	2.400	5.900	.	.
JUN	6.100	7.500	.	.
JUL	11.000	11.000	.	.
AUG	8.700	2.500	.	.
SEP	6.300	6.100	.	.
OCT	6.500	.540 <T	.	.
NOV	.750 <T	.300 <T	.	.
DEC	2.100 <T	.910 <T	.	.
COPPER (UG/L)			DET'N LIMIT = .100 GUIDELINE = 1000 (A3)	
JAN	3.400	2.400	.	.
FEB	4.600	2.800	560.000	30.000
MAR	5.000	2.900	.	.
APR	19.000	2.800	.	.
MAY	5.700	2.200	.	.
JUN	2.600	9.600	.	.
JUL	5.200	2.300	.	.
AUG	4.000	2.700	.	.
SEP	4.700	2.400	.	.
OCT	4.700	1.700	.	.
NOV	4.000	2.200	.	.
DEC	23.000	2.600 <T	.	.

TABLE 5

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	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM	
	RAW	TREATED	SITE 1	
			STANDING	FREE FLOW
IRON (UG/L)				DET'N LIMIT = 4.000 GUIDELINE = 300. (A3)
JAN	320.000	9.700 <T	.	.
FEB	270.000	19.000 <T	140.000	130.000
MAR	220.000	8.800 <T	.	.
APR	440.000	BDL	.	.
MAY	320.000	6.000 <T	.	.
JUN	5.100 <T	470.000	.	.
JUL	420.000	BDL	.	.
AUG	390.000	6.500 <T	.	.
SEP	300.000	BDL	.	.
OCT	440.000	8.700 <T	.	.
NOV	290.000	19.000 <T	.	.
DEC	82.000	11.000 <T	.	.
MERCURY (UG/L)				DET'N LIMIT = 0.010 GUIDELINE = 1.000 (A1)
JAN	.030 <T	.030 <T	.	.
FEB	.020 <T	.020 <T	.	BDL
MAR	.020 <T	.020 <T	.	.
APR	.060	BDL	.	.
MAY	BDL	BDL	.	.
JUN	.030 <T	.040 <T	.	.
JUL	BDL	BDL	.	.
AUG	.070	.040 <T	.	.
SEP	.060	.050 <T	.	.
OCT	.050 <T	.030 <T	.	.
NOV	.040 <T	.020 <T	.	.
DEC	.020 <T	.020 <T	.	.
MANGANESE (UG/L)				DET'N LIMIT = .050 GUIDELINE = 50.0 (A3)
JAN	17.000	1.900	.	.
FEB	18.000	2.700	4.700	4.500
MAR	19.000	2.200	.	.
APR	45.000	1.400	.	.
MAY	65.000	3.600	.	.
JUN	1.800	83.000	.	.
JUL	77.000	6.800	.	.
AUG	73.000	2.500	.	.
SEP	54.000	1.600	.	.
OCT	43.000	1.500	.	.
NOV	30.000	2.700	.	.
DEC	3.800	2.200	.	.
MOLYBDENUM (UG/L)				DET'N LIMIT = 0.020 GUIDELINE = N/A
JAN	.470 <T	.570	.	.
FEB	.620	.880	.730	.580
MAR	1.600	1.600	.	.
APR	.530	.770	.	.

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM CAYUGA WTP 1989

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM	
	RAW	TREATED	SITE 1	
			STANDING	FREE FLOW
MAY	1.000	1.300	.	.
JUN	2.100	1.200	.	.
JUL	1.100	1.700	.	.
AUG	1.700	2.200	.	.
SEP	2.000	2.400	.	.
OCT	1.700	2.200	.	.
NOV	1.300	1.600	.	.
DEC	1.300	1.200	.	.
NICKEL (UG/L)				DET'N LIMIT = 0.100 GUIDELINE = 50. (F3)
JAN	1.100 <T	.330 <T	.	.
FEB	1.900 <T	2.000 <T	14.000	1.800 <T
MAR	2.800	2.400	.	.
APR	.780 <T	.690 <T	.	.
MAY	3.900	2.900	.	.
JUN	BDL	BDL	.	.
JUL	1.800 <T	1.100 <T	.	.
AUG	4.600	2.400	.	.
SEP	3.200	3.400	.	.
OCT	3.400	2.600	.	.
NOV	4.100	4.400	.	.
DEC	3.200	4.100	.	.
LEAD (UG/L)				DET'N LIMIT = 0.050 GUIDELINE = 50. (A1)
JAN	.740	.210	.	.
FEB	.720	.280	5.300	.350
MAR	1.100	.610	.	.
APR	1.900	.450	.	.
MAY	1.600	.480	.	.
JUN	.490	3.100	.	.
JUL	2.200	.470	.	.
AUG	1.900	.810	.	.
SEP	1.700	.520	.	.
OCT	1.200	.250	.	.
NOV	1.200	.200 <T	.	.
DEC	.380 <T	.220 <T	.	.
ANTIMONY (UG/L)				DET'N LIMIT = .050 GUIDELINE = 146. (D4)
JAN	.450	.530	.	.
FEB	.470	.480	.610	.480
MAR	.670	.710	.	.
APR	.410	.550	.	.
MAY	.950	.920	.	.
JUN	1.000	1.000	.	.
JUL	.710	.840	.	.
AUG	.730	.660	.	.
SEP	.990	1.100	.	.

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM CAYUGA WTP 1989

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM	
	RAW	TREATED	SITE 1	
			STANDING	FREE FLOW
OCT	.630	.660	.	.
NOV	.450	.430	.	.
DEC	.580	.380 <T	.	.
SELENIUM (UG/L)			DET'N LIMIT = 0.200 GUIDELINE = 10. (A1)	
JAN	BDL	BDL	.	.
FEB	1.000 <T	1.400 <T	2.000 <T	1.900 <T
MAR	4.800 <T	5.700 <T	.	.
APR	BDL	1.400 <T	.	.
MAY	1.500 <T	5.800 <T	.	.
JUN	6.700 <T	1.500 <T	.	.
JUL	1.900 <T	3.600 <T	.	.
AUG	1.900 <T	4.400 <T	.	.
SEP	BDL	5.000 <T	.	.
OCT	BDL	1.200 <T	.	.
NOV	BDL	BDL	.	.
DEC	1.100 <T	BDL	.	.
STRONTIUM (UG/L)			DET'N LIMIT = .050 GUIDELINE = N/A	
JAN	360.000	390.000	.	.
FEB	430.000	420.000	480.000	440.000
MAR	920.000	910.000	.	.
APR	520.000	410.000	.	.
MAY	710.000	730.000	.	.
JUN	460.000	450.000	.	.
JUL	620.000	620.000	.	.
AUG	810.000	820.000	.	.
SEP	870.000	860.000	.	.
OCT	900.000	850.000	.	.
NOV	750.000	770.000	.	.
DEC	760.000	740.000	.	.
TITANIUM (UG/L)			DET'N LIMIT = .050 GUIDELINE = N/A	
JAN	18.000	7.100	.	.
FEB	20.000	7.300	8.700	8.200
MAR	22.000	9.400	.	.
APR	22.000	13.000	.	.
MAY	17.000	9.200	.	.
JUN	13.000	23.000	.	.
JUL	20.000	11.000	.	.
AUG	13.000	6.600	.	.
SEP	17.000	9.200	.	.
OCT	9.700	4.600	.	.
NOV	7.000	3.400	.	.
DEC	13.000	8.800	.	.
THALLIUM (UG/L)			DET'N LIMIT = .010 GUIDELINE = 13. (D4)	

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM CAYUGA WTP 1989

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM	
	RAW	TREATED	SITE 1	
			STANDING	FREE FLOW
JAN	BDL	BDL	.	.
FEB	.020 <T	BDL	BDL	BDL
MAR	BDL	BDL	.	.
APR	.210	.130 <T	.	.
MAY	.050 <T	BDL	.	.
JUN	BDL	BDL	.	.
JUL	BDL	BDL	.	.
AUG	.030 <T	BDL	.	.
SEP	.050 <T	BDL	.	.
OCT	.030 <T	.030 <T	.	.
NOV	BDL	BDL	.	.
DEC	BDL	BDL	.	.
URANIUM (UG/L)			DET'N LIMIT = .020	GUIDELINE = 100.(B1)
JAN	.780	.500	.	.
FEB	.690	.740	.520	.530
MAR	1.100	.780	.	.
APR	.920	.540	.	.
MAY	.930	.950	.	.
JUN	.740	1.000	.	.
JUL	1.000	1.300	.	.
AUG	.880	.840	.	.
SEP	.830	.730	.	.
OCT	.610	.500	.	.
NOV	.860	.690	.	.
DEC	1.400	1.100	.	.
VANADIUM (UG/L)			DET'N LIMIT = .050	GUIDELINE = N/A
JAN	1.100	.260 <T	.	.
FEB	.860	.400 <T	.080 <T	.100 <T
MAR	.720	.220 <T	.	.
APR	1.100	.350 <T	.	.
MAY	.910	.450 <T	.	.
JUN	.830	1.700	.	.
JUL	1.800	1.200	.	.
AUG	1.700	.970	.	.
SEP	1.400	.980	.	.
OCT	1.100	.570	.	.
NOV	.690	.350 <T	.	.
DEC	.810	.640	.	.
ZINC (UG/L)			DET'N LIMIT = .001	GUIDELINE = 5000. (A3)
JAN	9.200	5.300	.	.
FEB	15.000	7.800	58.000	4.900
MAR	20.000	14.000	.	.
APR	27.000	6.300	.	.
MAY	13.000	7.600	.	.

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM CAYUGA WTP 1989

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM	
	RAW	TREATED	SITE 1	
			STANDING	FREE FLOW
JUN	5.600	15.000	.	.
JUL	13.000	5.400	.	.
AUG	8.900	3.700	.	.
SEP	16.000	6.400	.	.
OCT	11.000	4.700	.	.
NOV	14.000	7.500	.	.
DEC	13.000	8.900	.	.

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM CAYUGA WTP 1989

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM	
	RAW	TREATED	SITE 1	
			STANDING	FREE FLOW
PESTICIDES & PCB				
ALPHA BHC (NG/L)			DET'N LIMIT = 1.000	GUIDELINE = 700 (G)
JAN	2.000 <T	2.000 <T	.	.
FEB	BDL	BDL	.	1.000 <T
MAR	BDL	2.000 <T	.	.
APR	BDL	BDL	.	.
MAY	BDL	BDL	.	.
JUN	BDL	BDL	.	.
JUL	BDL	2.000 <T	.	.
AUG	BDL	BDL	.	.
SEP	BDL	BDL	.	.
OCT	BDL	BDL	.	.
NOV	BDL	BDL	.	.
DEC	BDL	BDL	.	.
LINDANE (NG/L)			DET'N LIMIT = 1.000	GUIDELINE = 4000 (A1)
JAN	3.000 <T	5.000 <T	.	.
FEB	2.000 <T	1.000 <T	.	3.000 <T
MAR	2.000 <T	4.000 <T	.	.
APR	2.000 <T	2.000 <T	.	.
MAY	2.000 <T	9.000 <T	.	.
JUN	BDL	BDL	.	.
JUL	3.000 <T	8.000 <T	.	.
AUG	4.000 <T	2.000 <T	.	.
SEP	4.000 <T	6.000 <T	.	.
OCT	3.000 <T	6.000 <T	.	.
NOV	5.000 <T	BDL	.	.
DEC	3.000 <T	3.000 <T	.	.
ATRAZINE (NG/L)			DET'N LIMIT = 50.00	GUIDELINE = 60000 (B3)
JAN	390.000 <T	340.000 <T	.	.
FEB	BDL	BDL	.	BDL
MAR	BDL	BDL	.	.
APR	BDL	BDL	.	.
MAY	200.000 <T	280.000 <T	.	.
JUN	1820.000	1860.000	.	.
JUL	570.000	730.000	.	.
AUG	640.000	610.000	.	.
SEP	510.000	490.000 <T	.	.
OCT	420.000 <T	1460.000	.	.
NOV	280.000 <T	260.000 <T	.	.
DEC	360.000 <T	380.000 <T	.	.
ATRATONE (NG/L)			DET'N LIMIT = 50.	GUIDELINE = N/A
JAN	BDL	BDL	.	.
FEB	BDL	BDL	.	BDL
MAR	BDL	BDL	.	.

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM CAYUGA WTP 1989

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM	
	RAW	TREATED	SITE 1	
			STANDING	FREE FLOW
APR	BDL	BDL	.	.
MAY	BDL	BDL	.	.
JUN	BDL	BDL	.	.
JUL	BDL	BDL	.	.
AUG	170.000 <T	160.000 <T	.	.
SEP	BDL	BDL	.	.
OCT	BDL	BDL	.	.
NOV	BDL	BDL	.	.
DEC	BDL	BDL	.	.
CYANAZINE (BLADEX) (NG/L)			DET'N LIMIT = 100.00	GUIDELINE = 10000 (B3)
JAN	BDL	BDL	.	.
FEB	BDL	BDL	.	BDL
MAR	BDL	BDL	.	.
APR	BDL	BDL	.	.
MAY	BDL	BDL	.	.
JUN	470.000 <T	280.000 <T	.	.
JUL	BDL	BDL	.	.
AUG	BDL	BDL	.	.
SEP	BDL	BDL	.	.
OCT	BDL	BDL	.	.
NOV	BDL	BDL	.	.
DEC	BDL	BDL	.	.
D-ETHYL ATRAZINE (NG/L)			DET'N LIMIT = N/A	GUIDELINE = N/A
JAN	BDL	BDL	.	.
FEB	BDL	BDL	.	BDL
MAR	BDL	BDL	.	.
APR	BDL	BDL	.	.
MAY	220.000 <T	200.000 <T	.	.
JUN	320.000 <T	350.000 <T	.	.
JUL	BDL	300.000 <T	.	.
AUG	230.000 <T	220.000 <T	.	.
SEP	BDL	BDL	.	.
OCT	BDL	720.000 <T	.	.
NOV	BDL	BDL	.	.
DEC	290.000 <T	250.000 <T	.	.
D-ETHYL SIMAZINE (NG/L)			DET'N LIMIT = N/A	GUIDELINE = N/A
JAN	BDL	BDL	.	.
FEB	BDL	BDL	.	BDL
MAR	BDL	BDL	.	.
APR	BDL	BDL	.	.
MAY	BDL	BDL	.	.
JUN	BDL	BDL	.	.
JUL	BDL	BDL	.	.
AUG	BDL	250.000 <T	.	.

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM CAYUGA WTP 1989

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM	
	RAW	TREATED	SITE 1	
			STANDING	FREE FLOW
SEP	BDL	BDL	.	.
OCT	BDL	BDL	.	.
NOV	BDL	BDL	.	.
DEC	BDL	BDL	.	.
METOLACHLOR (NG/L)			DET'N LIMIT = 500.	GUIDELINE = 50000 (B3)
JAN	BDL	BDL	.	.
FEB	BDL	BDL	.	BDL
MAR	BDL	BDL	.	.
APR	BDL	BDL	.	.
MAY	BDL	BDL	.	.
JUN	1550.000 <T	1560.000 <T	.	.
JUL	BDL	BDL	.	.
AUG	BDL	BDL	.	.
SEP	BDL	BDL	.	.
OCT	BDL	BDL	.	.
NOV	BDL	BDL	.	.
DEC	BDL	BDL	.	.

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM CAYUGA WTP 1989

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM	
	RAW	TREATED	SITE 1	
			STANDING	FREE FLOW
PHENOLICS (UG/L)			DET'N LIMIT = 0.2	GUIDELINE = 2.00 (A3)
JAN	4.000	3.000	.	.
FEB	6.800	6.200	.	.
MAR	5.000	4.800	.	.
APR	3.800	3.600	.	.
MAY	2.600	3.400	.	.
JUN	2.400	2.600	.	.
JUL	2.000	2.200	.	.
AUG	1.800	1.800	.	.
SEP	1.600	1.400	.	.
OCT	2.600	2.200	.	.
NOV	1.000	2.200	.	.
DEC	1.200	1.400	.	.

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM CAYUGA WTP 1989

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM	
	RAW	TREATED	SITE 1	
			STANDING	FREE FLOW
VOLATILES				
BENZENE (UG/L)				DET'N LIMIT = .050 GUIDELINE = 5.0 (B1)
JAN	BDL	BDL	.	.
FEB	BDL	BDL	.	BDL
MAR	BDL	BDL	.	.
APR	BDL	BDL	.	.
MAY	.050 <T	.050 <T	.	.
JUN	BDL	.100 <T	.	.
JUL	BDL	BDL	.	.
AUG	BDL	BDL	.	.
SEP	BDL	BDL	.	.
OCT	BDL	BDL	.	.
NOV	BDL	BDL	.	.
DEC	.050 <T	BDL	.	.
TOLUENE (UG/L)				DET'N LIMIT = .050 GUIDELINE = 24.0 (B4)
JAN	BDL	BDL	.	.
FEB	BDL	BDL	.	BDL
MAR	BDL	BDL	.	.
APR	BDL	BDL	.	.
MAY	BDL	.250 <T	.	.
JUN	BDL	.200 <T	.	.
JUL	BDL	BDL	.	.
AUG	BDL	.100 <T	.	.
SEP	BDL	BDL	.	.
OCT	BDL	BDL	.	.
NOV	BDL	BDL	.	.
DEC	BDL	.050 <T	.	.
ETHYLBENZENE (UG/L)				DET'N LIMIT = .050 GUIDELINE = 2.4 (B4)
JAN	BDL	.050 <T	.	.
FEB	BDL	BDL	.	BDL
MAR	BDL	BDL	.	.
APR	BDL	BDL	.	.
MAY	BDL	BDL	.	.
JUN	BDL	.050 <T	.	.
JUL	BDL	BDL	.	.
AUG	BDL	BDL	.	.
SEP	BDL	BDL	.	.
OCT	BDL	BDL	.	.
NOV	BDL	.050 <T	.	.
DEC	BDL	BDL	.	.
M-XYLENE (UG/L)				DET'N LIMIT = .100 GUIDELINE = 300 (B4)
JAN	BDL	BDL	.	.
FEB	BDL	BDL	.	BDL
MAR	BDL	BDL	.	.

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM CAYUGA WTP 1989

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM	
	RAW	TREATED	SITE 1	
			STANDING	FREE FLOW
APR	BDL	BDL	.	.
MAY	BDL	BDL	.	.
JUN	BDL	.100 <T	.	.
JUL	BDL	BDL	.	.
AUG	BDL	BDL	.	.
SEP	BDL	BDL	.	.
OCT	BDL	BDL	.	.
NOV	BDL	.200 <T	.	.
DEC	BDL	BDL	.	.
O-XYLENE (UG/L)			DET'N LIMIT = .050	GUIDELINE = 300 (B4)
JAN	BDL	BDL	.	.
FEB	BDL	BDL	.	BDL
MAR	BDL	.050 <T	.	.
APR	BDL	BDL	.	.
MAY	.050 <T	.050 <T	.	.
JUN	BDL	.100 <T	.	.
JUL	BDL	BDL	.	.
AUG	BDL	BDL	.	.
SEP	BDL	BDL	.	.
OCT	BDL	BDL	.	.
NOV	BDL	.050 <T	.	.
DEC	BDL	BDL	.	.
STYRENE (UG/L)			DET'N LIMIT = .050	GUIDELINE = 46.5 (D2)
JAN	BDL	BDL	.	.
FEB	.100 <T	BDL	.	.050 <T
MAR	.150 <T	BDL	.	.
APR	.100 <T	BDL	.	.
MAY	BDL	.100 <T	.	.
JUN	BDL	.150 <T	.	.
JUL	BDL	.300 <T	.	.
AUG	BDL	.050 <T	.	.
SEP	BDL	BDL	.	.
OCT	BDL	.050 <T	.	.
NOV	BDL	BDL	.	.
DEC	BDL	BDL	.	.
CHLOROFORM (UG/L)			DET'N LIMIT = .100	GUIDELINE = 350 (A1+)
JAN	.200 <T	111.800	.	.
FEB	.900 <T	139.400	.	108.000
MAR	.400 <T	115.000	.	.
APR	.500 <T	105.000	.	.
MAY	.400 <T	127.000	.	.
JUN	.600 <T	120.000	.	.
JUL	.600 <T	167.000	.	.
AUG	BDL	146.000	.	.

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM CAYUGA WTP 1989

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM	
	RAW	TREATED	SITE 1	
			STANDING	FREE FLOW
SEP	BDL	129.600	.	.
OCT	2.400 RRV	124.800	.	.
NOV	1.200	131.300	.	.
DEC	8.600	135.300	.	.
111, TRICHLOROETHANE (UG/L)				DET'N LIMIT = .020 GUIDELINE = 200 (D1)
JAN	BDL	BDL	.	.
FEB	.080 <T	BDL	.	BDL
MAR	.020 <T	BDL	.	.
APR	.020 <T	BDL	.	.
MAY	BDL	BDL	.	.
JUN	BDL	BDL	.	.
JUL	BDL	BDL	.	.
AUG	BDL	BDL	.	.
SEP	BDL	BDL	.	.
OCT	.020 <T	BDL	.	.
NOV	BDL	BDL	.	.
DEC	.040 <T	BDL	.	.
DICHLOROBROMOMETHANE (UG/L)				DET'N LIMIT = .050 GUIDELINE = 350 (A1+)
JAN	BDL	13.100	.	.
FEB	BDL	13.450	.	12.200
MAR	.050 <T	25.100	.	.
APR	BDL	13.700	.	.
MAY	BDL	25.300	.	.
JUN	BDL	18.500	.	.
JUL	BDL	24.050	.	.
AUG	BDL	28.800	.	.
SEP	BDL	29.200	.	.
OCT	.300 <T	30.350	.	.
NOV	.200 <T	24.200	.	.
DEC	1.050	22.750	.	.
CHLORODIBROMOMETHANE (UG/L)				DET'N LIMIT = .100 GUIDELINE = 350 (A1+)
JAN	BDL	1.200	.	.
FEB	BDL	.600 <T	.	.700 <T
MAR	BDL	2.300 APS	.	.
APR	BDL	1.700	.	.
MAY	BDL	3.400	.	.
JUN	BDL	1.900 APS	.	.
JUL	BDL	2.300	.	.
AUG	BDL	3.800	.	.
SEP	BDL	4.400	.	.
OCT	.100 <T	5.100	.	.
NOV	BDL	2.900	.	.
DEC	BDL	1.500	.	.

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM CAYUGA WTP 1989

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM	
	RAW	TREATED	SITE 1	
			STANDING	FREE FLOW
T-CHLOROETHYLENE (UG/L)				DET'N LIMIT = .050 GUIDELINE = 10.0 (C2)
JAN	BDL	BDL	.	.
FEB	BDL	BDL	.	BDL
MAR	BDL	.250 <T	.	.
APR	BDL	BDL	.	.
MAY	BDL	.100 <T	.	.
JUN	BDL	BDL	.	.
JUL	BDL	.050 <T	.	.
AUG	BDL	.150 <T	.	.
SEP	BDL	.150 <T	.	.
OCT	BDL	BDL	.	.
NOV	BDL	BDL	.	.
DEC	BDL	.050 <T	.	.
BROMOFORM (UG/L)				DET'N LIMIT = .200 GUIDELINE = 350 (A1+)
JAN	BDL	BDL	.	.
FEB	BDL	BDL	.	BDL
MAR	BDL	BDL	.	.
APR	BDL	BDL	.	.
MAY	BDL	BDL	.	.
JUN	BDL	BDL	.	.
JUL	BDL	BDL	.	.
AUG	BDL	BDL	.	.
SEP	BDL	BDL	.	.
OCT	BDL	.600 <T	.	.
NOV	BDL	BDL	.	.
DEC	BDL	BDL	.	.
TOTL TRIHALOMETHANES (UG/L)				DET'N LIMIT = .500 GUIDELINE = 350 (A1)
JAN	BDL	126.100	.	.
FEB	BDL	153.450	.	120.900
MAR	BDL	142.400	.	.
APR	.500 <T	120.400	.	.
MAY	BDL	155.700	.	.
JUN	.600 <T	140.400	.	.
JUL	.600 <T	193.350	.	.
AUG	BDL	178.600	.	.
SEP	BDL	163.200	.	.
OCT	2.800 <T	160.850	.	.
NOV	1.400 <T	158.400	.	.
DEC	9.600	159.500	.	.

TRACE LEVELS OF TOLUENE ARE LABORATORY ARTIFACTS DERIVED FROM THE ANALYTICAL METHODOLOGY.

TRACE LEVELS OF STYRENE ARE CONSIDERED TO BE LABORATORY ARTIFACTS RESULTING FROM THE LABORATORY SHIPPING CONTAINERS.

Table 6

SCAN/PARAMETER	UNIT	DETECTION LIMIT	GUIDELINE
BACTERIOLOGICAL			
FECAL COLIFORM MEMBRANE FILTRATION	CT/100ML	0	0 (A1)
STANDARD PLATE COUNT MEMBRANE FILTRATION	CT/ML	0	500/ML(A1)
TOTAL COLIFORM MEMBRANE FILTRATION	CT/100ML	0	5/100mL(A1)
TOTAL COLIFORM BACKGROUND MF	CT/100ML	0	N/A
CHLOROAROMATICS			
HEXACHLOROBUTADIENE	NG/L	1.000	450. (D4)
1,2,3-TRICHLOROBENZENE	NG/L	5.000	10000 (I)
1,2,3,4-TETRACHLOROBENZENE	NG/L	1.000	10000 (I)
1,2,3,5-TETRACHLOROBENZENE	NG/L	1.000	10000 (I)
1,2,4-TRICHLOROBENZENE	NG/L	5.000	10000 (I)
1,2,4,5-TETRACHLOROBENZENE	NG/L	1.000	38000 (D4)
1,3,5-TRICHLOROBENZENE	NG/L	5.000	10000 (D4)
HEXACHLOROBENZENE	NG/L	1.0	10. (C1)
HEXACHLOROETHANE	NG/L	1.000	1900. (D4)
OCTACHLOROSTYRENE	NG/L	1.000	N/A
PENTACHLOROBENZENE	NG/L	1.000	74000 (D4)
2,3,6-TRICHLOROTOLUENE	NG/L	5.000	N/A
2,4,5-TRICHLOROTOLUENE	NG/L	5.000	N/A
2,6,A-TRICHLOROTOLUENE	NG/L	5.000	N/A
CHLOROPHENOLS			
2,3,4-TRICHLOROPHENOL	NG/L	50.	N/A
2,3,4,5-TETRACHLOROPHENOL	NG/L	50.	N/A
2,3,5,6-TETRACHLOROPHENOL	NG/L	50.	N/A
2,4,5-TRICHLOROPHENOL	NG/L	50.	2600000 (D4)
2,4,6-TRICHLOROPHENOL	NG/L	50.	2000. (B4)
PENTACHLOROPHENOL	NG/L	50.	30000. (B4)
CHEMISTRY (FLD)			
FIELD COMBINED CHLORINE RESIDUAL	MG/L	N/A	N/A
FIELD FREE CHLORINE RESIDUAL	MG/L	N/A	N/A
FIELD TOTAL CHLORINE RESIDUAL	MG/L	N/A	N/A
FIELD PH	DMSNLESS	N/A	6.5-8.5(A4)
FIELD TEMPERATURE	^{o}C	N/A	<15 ^{o}C(A1)
FIELD TURBIDITY	FTU	N/A	1.0 (A1)
CHEMISTRY (LAB)			
ALKALINITY	MG/L	.200	30-500(A4)
CALCIUM	MG/L	.100	100. (F2)
CYANIDE	MG/L	.001	.20(A1)
CHLORIDE	MG/L	.200	250. (A3)
COLOUR	TCU	.5	5.0 (A3)
CONDUCTIVITY	UMHO/CM	1.	400. (F2)
FLUORIDE	MG/L	.01	2.4 (A1)
HARDNESS	MG/L	.50	80-100(A4)
MAGNESIUM	MG/L	.05	30. (F2)

SCAN/PARAMETER	UNIT	DETECTION LIMIT	GUIDELINE
NITRITE	MG/L	.001	1.0 (A1)
TOTAL NITRATES	MG/L	.02	10. (A1)
NITROGEN TOTAL KJELDAHL	MG/L	.02	N/A
PH	DMSNLESS	N/A	6.5-8.5(A4)
PHOSPHORUS FIL REACT	MG/L	.0005	N/A
PHOSPHORUS TOTAL	MG/L	.002	.40(F2)
TOTAL SOLIDS	MG/L	1.	500. (A3)
TURBIDITY	FTU	.02	1.0 (A1)
METALS			
ALUMINUM	UG/L	.050	100. (A4)
ANTIMONY	UG/L	.050	10. (F3)
ARSENIC	UG/L	.050	50. (A1)
BARIUM	UG/L	.020	1000. (A1)
BORON	UG/L	.200	5000. (A1)
BERYLLIUM	UG/L	.010	0.20 (H)
CADMIUM	UG/L	.050	5.0 (A1)
COBALT	UG/L	.020	1000. (H)
CHROMIUM	UG/L	.100	50. (A1)
COPPER	UG/L	.100	1000. (A3)
IRON	UG/L	5.0	300. (A3)
MERCURY	UG/L	.01	1.0 (A1)
MANGANESE	UG/L	.050	50. (A3)
MOLYBDENUM	UG/L	.020	500. (H)
NICKEL	UG/L	.100	50. (F3)
LEAD	UG/L	.020	50. (A1)
SELENIUM	UG/L	.200	10. (A1)
SILVER	UG/L	.020	50. (A1)
STRONTIUM	UG/L	.100	2000. (H)
THALLIUM	UG/L	.010	13. (D4)
TITANIUM	UG/L	.100	N/A
URANIUM	UG/L	.020	20. (A2)
VANADIUM	UG/L	.020	100. (H)
ZINC	UG/L	.020	5000. (A3)
PHENOLICS			
PHENOLICS (UNFILTERED REACTIVE)	UG/L	.2	2.0 (A3)
PESTICIDES & PCB			
ALDRIN	NG/L	1.0	700. (A1)
AMETRINE	NG/L	50.	300000. (D3)
ATRAZINE	NG/L	50.	60000. (B3)
ALPHA HEXACHLOROCYCLOHEXANE (BHC)	NG/L	1.0	700. (G)
BETA HEXACHLOROCYCLOHEXANE (BHC)	NG/L	1.0	300. (G)
GAMMA HEXACHLOROCYCLOHEXANE(LINDANE)	NG/L	1.0	4000. (A1)
ALPHA CHLORDANE	NG/L	2.0	7000. (A1)
GAMMA CHLORDANE	NG/L	2.0	7000. (A1)
BLADEX	NG/L	100.	10000. (B3)
DIELDRIN	NG/L	2.0	700. (A1)
METHOXYCHLOR	NG/L	5.0	900000. (B1)
ENDOSULFAN 1 (THIODAN I)	NG/L	2.0	74000. (D4)
ENDOSULFAN 2 (THIODAN II)	NG/L	4.0	74000. (D4)
ENDRIN	NG/L	4.0	200. (A1)
ENDOSULFAN SULPHATE(THIODAN SULPHATE)	NG/L	4.0	N/A
HEPTACHLOR EPOXIDE	NG/L	1.0	3000. (A1)

SCAN/PARAMETER	UNIT	DETECTION LIMIT	GUIDELINE	
HEPTACHLOR	NG/L	1.0	3000.	(A1)
METOLACHLOR	NG/L	500.	50000.	(B3)
MIREX	NG/L	5.0	N/A	
OXYCHLORDANE	NG/L	2.0	N/A	
O,P-DDT	NG/L	5.0	30000.	(A1)
PCB	NG/L	20.0	3000.	(A2)
O,P-DDD	NG/L	5.0	N/A	
PPDDE	NG/L	1.0	30000.	(A1)
PPDDT	NG/L	5.0	30000.	(A1)
ATRATONE	NG/L	50.	N/A	
ALACHLOR	NG/L	500.	35000.	(D2)
PROMETONE	NG/L	50.	52500.	(D3)
PROPAZINE	NG/L	50.	16000.	(D2)
PROMETRYNE	NG/L	50.	1000.	(B3)
SENCOR (METRIBUZIN)	NG/L	100.	80000.	(B2)
SIMAZINE	NG/L	50.	10000.	(B3)
POLYAROMATIC HYDROCARBONS				
PHENANTHRENE	NG/L	10.0	N/A	
ANTHRACENE	NG/L	1.0	N/A	
FLUORANTHENE	NG/L	20.0	42000.	(D4)
PYRENE	NG/L	20.0	N/A	
BENZO(A)ANTHRACENE	NG/L	20.0	N/A	
CHRYSENE	NG/L	50.0	N/A	
DIMETHYL BENZO(A)ANTHRACENE	NG/L	5.0	N/A	
BENZO(E)PYRENE	NG/L	50.0	N/A	
BENZO(B)FLUORANTHENE	NG/L	10.0	N/A	
PERYLENE	NG/L	10.0	N/A	
BENZO(K)FLUORANTHENE	NG/L	1.0	N/A	
BENZO(A)PYRENE	NG/L	5.0	10.	(B1)
BENZO(G,H,I)PERYLENE	NG/L	20.0	N/A	
DIBENZO(A,H)ANTHRACENE	NG/L	10.0	N/A	
INDENO(1,2,3-C,D)PYRENE	NG/L	20.0	N/A	
BENZO(B)CHRYSENE	NG/L	2.0	N/A	
CORONENE	NG/L	10.0	N/A	
SPECIFIC PESTICIDES				
TOXAPHENE	NG/L	N/A	5000.	(A1)
2,4,5-TRICHLOROBUTYRIC ACID	NG/L	50.	200000.	(B4)
(2,4,5-T)				
2,4-DICHLOROBUTYRIC ACID (2,4-D)	NG/L	100.	100000.	(A1)
2,4-DICHLORORPHENOXYBUTYRIC ACID	NG/L	200.	18000.	(B3)
2,4-D PROPIONIC ACID	NG/L	100.	N/A	
DICAMBA	NG/L	100.	120000.	(B1)
PICLORAM	NG/L	100.	190000.	(B3)
SILVEX (2,4,5-TP)	NG/L	50.	10000.	(A1)
DIAZINON	NG/L	20.	20000.	(B1)
DICHLOROVOS	NG/L	20.	N/A	
DURSBAN	NG/L	20.	N/A	
ETHION	NG/L	20.	35000.	(G)
GUTHION(AZINPHOSMETHYL)	NG/L	N/A	20000.	(B1)
MALATHION	NG/L	20.	190000.	(B1)
MEVINPHOS	NG/L	20.	N/A	
METHYL PARATHION	NG/L	50.	7000.	(A1)
METHYLTRITHION	NG/L	20.	N/A	
PARATHION	NG/L	20.	50000.	(B1)

SCAN/PARAMETER	UNIT	DETECTION LIMIT	GUIDELINE	
PHORATE (THIMET)	NG/L	20.	2000.	(B3)
RELDAN	NG/L	20.	N/A	
RONNEL	NG/L	20.	N/A	
AMINOCARB	NG/L	N/A	N/A	
BENONYL	NG/L	N/A	N/A	
BUX (METALKAMATE)	NG/L	2000.	N/A	
CARBOFURAN	NG/L	2000.	90000.	(B1)
CICP (CHLORPROPHAM)	NG/L	2000.	350000.	(G)
DIALLATE	NG/L	2000.	30000.	(H)
EPTAM	NG/L	2000.	N/A	
IPC	NG/L	2000.	N/A	
PROPOXUR (BAYGON)	NG/L	2000.	90000.	(G)
SEVIN (CARBARYL)	NG/L	200.	90000.	(B1)
SUTAN (BUTYLATE)	NG/L	2000.	245000.	(D3)
VOLATILES				
BENZENE	UG/L	.050	5.0	(B1)
TOLUENE	UG/L	.050	24.0	(B4)
ETHYLBENZENE	UG/L	.050	2.4	(B4)
PARA-XYLENE	UG/L	.100	300.	(B4)
META-XYLENE	UG/L	.100	300.	(B4)
ORTHO-XYLENE	UG/L	.050	300.	(B4)
1,1-DICHLOROETHYLENE	UG/L	.100	7.0	(D1)
ETHLYENE DIBROMIDE	UG/L	.05	.05	G)
METHYLENE CHLORIDE	UG/L	.500	50.	(B1)
TRANS-1,2-DICHLOROETHYLENE	UG/L	.100	70.	(D5)
1,1-DICHLOROETHANE	UG/L	.100	N/A	
CHLOROFORM	UG/L	.100	350.	(A1+)
1,1,1-TRICHLOROETHANE	UG/L	.020	200.	(D1)
1,2-DICHLOROETHANE	UG/L	.050	5.0	(D1)
CARBON TETRACHLORIDE	UG/L	.200	5.0	(B1)
1,2-DICHLOROPROPANE	UG/L	.050	6.0	(D5)
TRICHLOROETHYLENE	UG/L	.100	50.	(B1)
DICHLOROBROMOMETHANE	UG/L	.050	350.	(A1+)
1,1,2-TRICHLOROETHANE	UG/L	.050	.60	(D4)
CHLORODIBROMOMETHANE	UG/L	.100	350.	(A1+)
TETRACHLOROETHYLENE	UG/L	.050	10.0	(C2)
BROMOFORM	UG/L	.200	350.	(A1+)
1,1,2,2-TETRACHLOROETHANE	UG/L	.050	0.17	(D4)
CHLOROBENZENE	UG/L	.100	60.	(D5)
1,4-DICHLOROBENZENE	UG/L	.100	1.0	(B4)
1,3-DICHLOROBENZENE	UG/L	.100	130.	(G)
1,2-DICHLOROBENZENE	UG/L	.050	3.0	(B4)
TRIFLUOROCHLOROTOLUENE	UG/L	.100	N/A	
TOTAL TRIHALOMETHANES	UG/L	.500	350.	(A1)
STYRENE	UG/L	.05	140.	(D5)